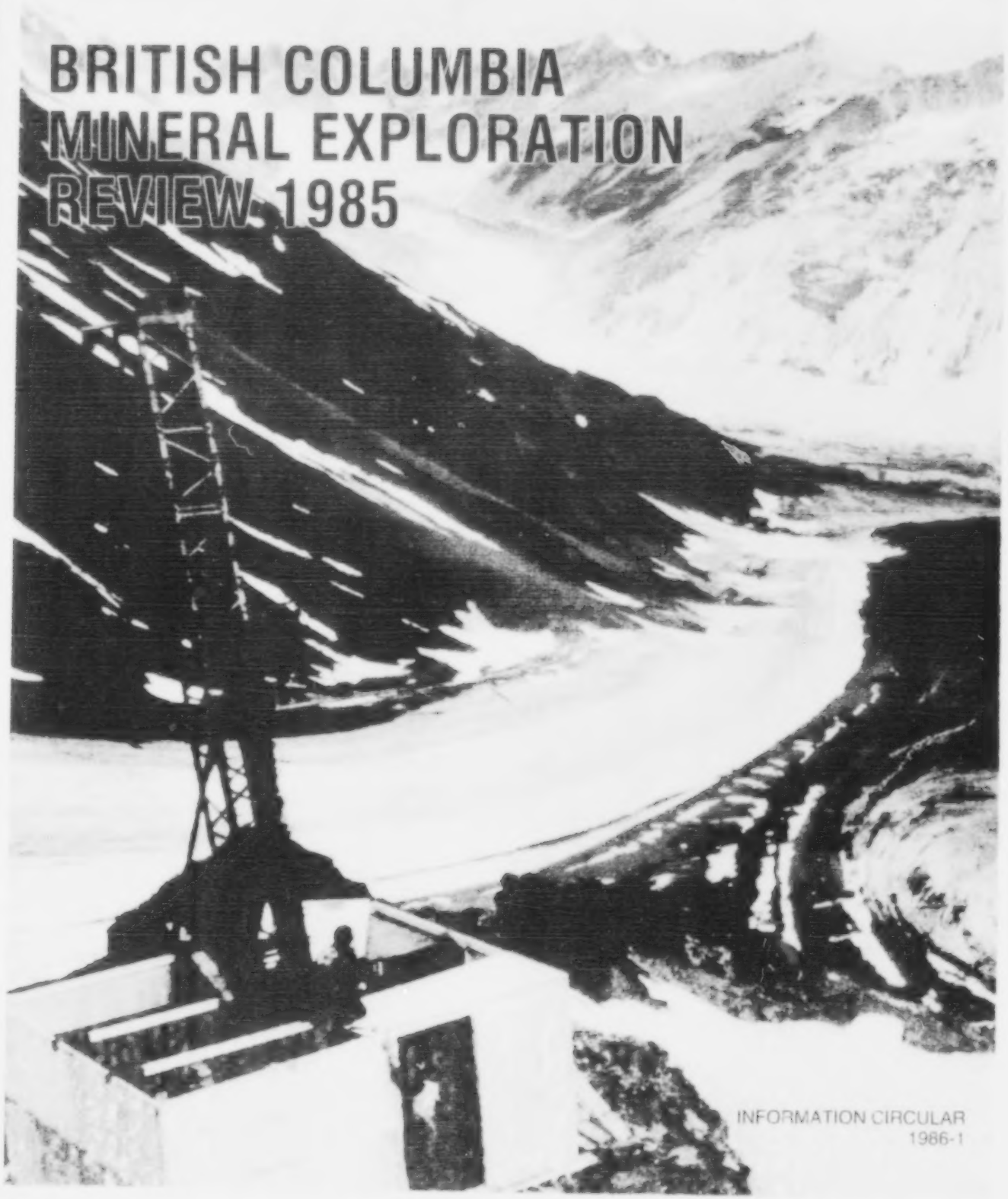
Hon. Stephen Rogers, Minister
Ministry of Energy, Mines and
Petroleum Resources
Mineral Resources Division

BRITISH COLUMBIA MINERAL EXPLORATION REVIEW 1985



INFORMATION CIRCULAR
1986-1

British Columbia Cataloguing in Publication Data
Main entry under title:
British Columbia exploration review. -- 1983-

(Information circular, ISSN 0825-5431)
Annual.
Cover title: British Columbia mineral exploration review.
ISSN 0828-6094 = British Columbia exploration review

1. Prospecting - British Columbia - Periodicals. 2. Geology, Economic - British Columbia - Periodicals. 3. Mines and mineral resources - British Columbia - Periodicals. I. British Columbia. Geological Branch. II. Title: British Columbia mineral exploration review. III. Series: Information circular (British Columbia. Ministry of Energy, Mines and Petroleum Resources)

TN270.A1B74 622'.1'09711
Rev. Nov. 1985

Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources

E R R A T U M

BRITISH COLUMBIA
MINERAL EXPLORATION REVIEW
1985

INFORMATION CIRCULAR 1986-1

SOUTHWEST DISTRICT - DEVELOPMENTS: The first paragraph on page 66 should read:

> At the adjacent IRON RIVER (180) coal licences, NUSPAR RESOURCES has received approval to extract a 5 000-tonne test bulk sample to ship to Harmac. Exploration mapping, trenching and drilling are continuing.

MINERAL RESOURCES DIVISION
GEOLOGICAL BRANCH

March 14, 1986

B R I T I S H C O L U M B I A

M I N E R A L E X P L O R A T I O N R E V I E W 1 9 8 5

By

Staff, Geological Branch
Mineral Resources Division
British Columbia Ministry of Energy, Mines and Petroleum Resources

Information Circular 1986-1
Victoria
British Columbia
January 1986

INTRODUCTION

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INTRODUCTION

Mineral exploration in British Columbia continued at a healthy pace during 1985, due to a sustained interest in precious metals. The total number of claims recorded by years' end is estimated to be in the neighbourhood of 59,000, as compared to 81,729 recorded during 1984 (Figure 1). Placer leases are estimated to reach a total of 705, as compared to 641 for 1984. Coal licence applications are estimated at 175, as compared to 227 for 1984.

Notwithstanding the considerably lower number of claims staked, exploration expenditures are expected to reach $66.4 million in hard rock and $12.8 million in coal for a total of $79.2 million. Respective figures for 1984 are 71.2, 11.7 and 82.9 million (Figure 1). These figures indicate that considerable funds were expended in major exploration programs. The

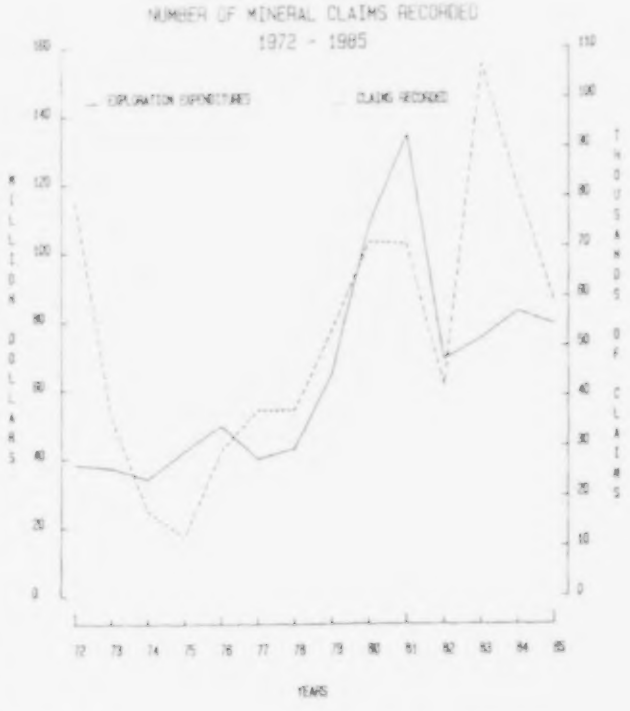

FIGURE 1 - Mineral exploration expenditures and number of claims recorded 1972-1985.

Toodoggone camp alone is estimated to have been the target of expenditures totalling more than $6.5 million by six main operators and several smaller ones. Other major programs were carried out at Muddy Lake, Windy Craggy-Mt. Henry Clay, Midway, Stewart, Cassiar, Mt. Klappan, Bralorne, Hedley, and Aylwin Creek (Willa).

Although a number of major mines continued to remain closed indefinitely, the year also saw some welcome developments. BELL COPPER reopened September 24th and MOSQUITO CREEK GOLD MINE reopened in July. On Vancouver Island, Westmin Resources in September commissioned their new H.W. MINE and mill at a cost of $250 million. BLACKDOME GOLD MINE is in an advanced stage of construction, and production is expected by mid-1986 at 180 tonnes per day. Other major mineral and coal deposits are at a stage of advanced exploration or early development as outlined below.

Gold and silver were actively sought throughout the Province in a variety of deposit types, the most important of which are:

- Epithermal deposits.
- Replacements along faults with precious metals associated with listwanites and extensive silica-carbonate alteration.
- Volcanogenic massive sulphide deposits.
- Bulk mineable porphyry deposits or deposits transitional between volcanogenic massive sulphides and porphyries.
- Gold bearing skarns.
- Manto-type replacement deposits with Ag/Pb/Zn mineralization.

Beginning with the most common precious metal target, epithermal deposits, by far the busiest area was the Toodoggone camp, 300 kilometres north of Smithers. Gold-silver mineralization here occurs along the central axis of a 100 X 20 kilometre belt of early Jurassic subaerial andesitic volcanics and associated intrusives, known as the Toodoggone volcanics. The distribution of deposits is strongly controlled by northwesterly trending faults. Related hydrothermal alteration includes extensive propylite, clay and silica alteration. The systems fit well into the classic epithermal model of Buchanan, and local hot spring discharge sites have been recognized in several places, particularly in the Alberts' Hump area where gold is associated with intense silica-barite replacements.

The most important deposit in Toodoggone camp so far is the LAWYERS deposit of Serem Inc., with reserves in excess of 982,000 tonnes grading 7.2 grams per tonne Au and 254 grams per tonne Ag. Gold at Lawyers is mostly found in a spectacular amethyst-gold breccia which occurs in veins and replacements along faults and shears. Serem is expected to file a Stage 1 report and a final feasibility report by years' end.

Other important epithermal deposits in the area include SILVER POND very close to Lawyers, the Alberts' Hump deposits (THESIS III, BV, and BONANZA RIDGE zones), SHAS, and CHAPPELLE, the site of the recently closed Baker Mine.

An important factor in maintaining a high level of interest in this remote area has been the Provincial Government's decision to extend the Omineca Resource Road 45 miles into the area from its present terminus at Moosevale Flats, depending on a production decision by Serem.

Another important area of epithermal gold-silver deposits is the old Stewart gold camp. Here Westmin Resources has outlined 3.89 million tonnes of pittable material grading 2.93 grams per tonne Au and 110.4 grams per tonne Ag mainly within the Glory Hole area of the old SILBAK PREMIER mine. At the nearby PROSPERITY-PORTER IDAHO property, Teck Corp. under option from Pacific Cassiar is working on 898,000 tonnes on three major vein structures grading 668 grams per tonne Ag.

A number of other promising epithermal prospects are under investigation in the Stewart area. Of particular interest is the SULPHURETS area, some 80 kilometres northwest of Stewart, where spectacular values in gold and silver are found in epithermal veins which are strongly structurally controlled and are associated with extensive quartz-carbonate alteration in Lower Jurassic sandstones, intermediate fragmental volcanics and intrusives. Large, low-grade deposits (18-22 million tonnes of 2.74 grams per tonne Au) transitional to the porphyry type are also found in this area.

A third area of important epithermal vein gold mineralization in the north is in the Cassiar camp where Erickson Gold Mines, under option with Cusac Industries have outlined what is so far the strongest gold-bearing structure in this camp. The EILEEN veins have been traced for more than 335 metres with widths ranging from 1 to 2 metres and grades averaging 23.3 grams per tonne Au.

In the southern part of the Province the old Bridge River-Bralorne camp is being intensely explored for epithermal to mesothermal gold bearing veins by a number of companies, the most active of which include Levon Resoures, X-Calibre Resources, and Mascot Gold Mines who have drill indicated 892,000 tonnes grading 10.3 grams per tonne Au at the BRALORNE MINE.

Last but by no means least in the series of successful epithermal gold discoveries is BLACKDOME MINES. Here bonanza-type gold mineralization occurs in several strong and very continuous epithermal quartz veins cutting felsic to intermediate subaerial Eocene flows and pyroclastics. Reserves are 185,000 tonnes grading 27.2 grams per tonne Au and 128.9 grams per tonne Ag. Plant construction is underway, and production is expected by mid 1986 at 180 tonnes per day.

Another popular target for precious metal deposits are replacements, mostly along major faults, with "no seeum" gold and silver associated with extensive silica-carbonate alteration and the development of listwanites. The MUDDY LAKE deposit of Chevron Minerals is in the Tatsamenie Lake area, 135 kilometres southwest of Dease Lake. Mineralization occurs in a number of zones along the faulted contact between Permian limestone and pre-Upper Triassic volcanics. Reserves and grades of this significant deposit may be released by Chevron in early 1986.

A third major target and opportunity are Volcanogenic polymetallic massive sulphides. At Western Mines on Vancouver Island, Westmin Resources have just commissioned their H-W mine and mill at a cost of $250 million. This recently discovered deposit is hosted in Upper Paleozoic felsic volcanics of the Sicker Group and has reserves of 13.6 million tonnes grading 2.4 grams per tonne Au, 36.0 grams per tonne Ag, 2.2% Cu, 0.33% Pb, and 5.3% Zn, and is open in three directions.

The discovery of this magnificent deposit has sparked a major exploration effort in the Sicker Group of Vancouver Island. In this respect the Mt. Sicker-Mt. Brenton area near Chemainus has seen a lot of activity by a number of companies, particularly in view of the discovery in December 1984 of a new massive sulphide zone by Aberford Resources on their LARA property. This zone, known as the Coronation Zone, has been traced for more than 1300 feet, has an average width of 6.4 metres and grades of 1.71 grams per tonne Au, 38.4 grams per tonne Ag, 1.98% Zn, 0.44% Cu, and 0.36% Pb. Other companies active in the Sicker belt include Corporation Falconbridge Copper on nearby Mt. Sicker, Westmin Resources, Kidd Creek Mines, Utah Mines, Falconbridge Ltd., and others.

In the vicinity of Adams Lake, Corporation Falconbridge Copper continued work on the REA GOLD deposit. This polymetallic-barite deposit, and the similar HOMESTAKE deposit nearby, occur in intermediate to felsic Devono-Mississippian metavolcanic rocks of the Eagle Bay formation. Reserves are 120,000 tonnes grading 18.2 grams per tonne Au, 141.2 grams per tonne Ag, 0.85% Cu, 4.11% Zn, and 3.67% Pb in two separate lenses.

In the extreme northwest corner of the Province at MT. HENRY CLAY, Stryker Resources and other companies, including Bear Creek Mining on the U.S. side of the border, continued their search for the source of very impressive Zn-Cu-Ag-Au-barite massive sulphide boulder float.

The WINDY CRAGGY deposit is located a few miles northwest of Mt. Henry Clay. This deposit has affinities with Cyprus and Besshi type massive sulphide deposits, occurs in a thick sequence of Norian pillow basalts and has reserves estimated at 300 million tonnes averaging 1.5% Cu and 0.08% Co with significant values of Au and Zn.

The REG deposit of Skyline Resources 70 miles northwest of Stewart is also polymetallic, with affinities to volcanogenic massive sulphides. Drill indicated reserves to date are 506,200 tonnes grading 17.48 grams per tonne Au.

Another popular target are gold bearing deposits of the porphyry type or deposits transitional between massive sulphides and porphyries which have possibilities for bulk mining.

In the Quesnel Lake area the Q.R. deposit of Dome Mines is hosted in Upper Triassic volcanics adjacent to a high level, coeval alkalic pluton. Gold occurs in intensely propylitized volcanics. Reserves to date are 862,000 tonnes grading 6.8 grams per tonne Au. At nearby SPANISH LAKE, Teck Corp. under option from Mt. Calvery Resources have outlined in excess of 890,000 tonnes pittable, grading 2.75 grams per tonne Au. Native gold occurs in pyrite associated with quartz veinlet swarms in Upper Triassic shales.

On Banks Island, the YELLOW GIANT property of Trader Resources Ltd. includes ten separate deposits. Of these the Kim Zone consists of 982,000 tonnes of pittable, highly fractured granitic rock grading 2.4 grams per tonne Au, while the Discovery Zone is a lode deposit with reserves of 99,600 tonnes grading 15.8 grams per tonne Au.

In the Slocan Lake area the WILLA (AYLWIN CREEK) deposit consists of a complex system of high-level porphyry and breccia bodies intruded into massive and fragmental mafic volcanics that are surrounded by later, post-mineral Mid to Late Jurassic granitic rocks of the Nelson batholith. Current thinking is that the intrusive-extrusive package represents a volcanic centre of the Lower Jurassic Rossland Group. Gold mineralization occurs partly in silicified porphyries but mostly in highly propylitized volcanics and intrusive breccias. Drill indicated reserves are 3.4 million tonnes grading 1.37 grams per tonne Au, 4.8 grams per tonne Ag and 0.32% Cu, with a higher grade zone of 560,000 tonnes grading 6.17 grams per tonne Au, 13.7 grams per tonne Ag and 0.94% Cu. It the coeval relationship of the intrusive-extrusive package and ot the gold mineralization, which pre dates Nelson intrusives, can be proven, this deposit would represent an exciting and potentially very significant new target that should be sought elsewhere in the Rossland Group.

Gold bearing skarns are another target that is receiving considerable attention. At HEDLEY, Mascot Gold Mines have carried out an extensive and successful drilling program near the old workings of this former producer. Gold occurs with arsenopyrite and skarn in Upper Triassic sediments and volcanics that are cut by Lower to Mid Jurassic diorites. Pittable reserves are 3.66 million tonnes grading 5.14 grams per tonne Au, and a production decision is expected in 1986 for this property.

At TILLICUM MOUNTAIN, Esperanza/La Teko Resources shipped 2000 tonnes of ore averaging 31.2 grams per tonne Au from their Heino Zone. Extensive silver mineralization is also found in this camp on the nearby Silver Queen and Arnie Flats zones.

In the Greenwood area, Noranda and Kettle River Resources continued work in the MARSHALL LAKE-SYLVESTER K area. Mineralization here is stratabound, auriferous, massive pyrrhotite-pyrite hosted in Upper Triassic sediments that have been locally altered to skarn.

Finally, the MIDWAY deposit being explored by Regional Resources and Nanisivik Mines Ltd. represents a new type of high grade Ag-Pb-Zn target that is being compared to Mexican manto type deposits. Mineralization occurs in 4.5 metre wide, laterally continuous pipes in Devonian carbonates at the contact with an overlying shale sequence. Grades average 583 grams per tonne Ag and 18% combined Pb and Zn. This deposit has some similarities with other tabular and pipe-like replacement deposits in nearby Yukon, and is likely to reach a production decision soon.

The large anthracite deposits of Gulf Canada Resources at MT. KLAPPAN are in a stage of advanced exploration/early development. The company has shipped two large bulk samples to European and Korean markets and a production decision is expected soon. Current reserves would allow a production of 5.0 to 5.5 million tonnes per year for 20 years, at least. This and other deposits of high-quality thermal coal, such as the Telkwa deposit of Crowsnest Resources, are the bright spots on an otherwise depressed coal sector.

In industrial minerals, Cassiar Asbestos Mine and Brinco Ltd. continued with exploration and development of their newly discovered multi-million tonne MCDAME deposit of high grade asbestos, adjacent to their Cassiar Mine.

Cominco Ltd. continued with a major program on their ALEY carbonatite-rare earths deposit northeast of Williston Lake. Grade and reserves for this significant new deposit are not yet available.

In summary, a number of new exciting opportunities are available in British Columbia. This Province was known for its many small gold deposits. It then became known for its large copper and molybdenum deposits. Precious metals have come back on the limelight. No Hemlo's have been discovered yet, but other exciting new possibilities exist. Some of these undoubtedly will be producers in the near future.

Articles in this report on exploration are arranged according to activity in each of the seven District Geologists' areas. A separate section is devoted to industrial minerals exploration, and a short summary of field activities and major mapping programs in aid of exploration by the Ministry's Geological Branch is also included. Mineral claim and exploration expenditure statistics were supplied by the Ministry's Titles Branch and by the B.C. and Yukon Chamber of Mines. Inputting and formatting was done by Geri Dickson. V.A. Preto, who wrote the introduction, and edited and compiled the report, gratefully acknowledges the cooperation and contributions of these agencies and individuals.

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INTRODUCTION

The level of mineral exploration, almost entirely devoted to the search for precious metal-bearing vein and polymetallic ('transitional') type deposits, was down approximately 10 percent from 1984 but up approximately 65 percent from 1983. The major exploration program for coal was the Klappan project. Diamond drill programs, totalling 65, were up by 3 percent from 1984 and by 32 percent from 1983. The most significant increase occurred in the Kutcho area where the target is silver-lead-zinc deposits of the Midway type. Major exploration programs took place in the TODDOOMENE, STEWART, Cassiar, TATSAMENIE LAKE, MIDWAY, MOUNT HENRY CLAY, and INKUT RIVER areas. The Lawyers and Midway projects were most advanced with significant results reported from both.

EXPLORATION

Minerals

In the extreme northwest, STRYKER and FREEPORT RESOURCES LTD. completed 830 metres of diamond drilling in 5 holes on their Low Jarvis area (MT. HENRY CLAY [1]) in an attempt to locate, and assess the source of numerous boulders of high grade (Zn-Cu-Ag-Au-Ba) volcanogenic massive sulphide found at the toe of Mt. Henry Clay Hanging Glacier. On the American side of the border, BEAR CREEK MINING COMPANY LTD. completed 5 diamond drill holes through the Mt. Henry Clay Hanging Glacier, also in a search for the source of visually impressive boulders. At the WINDY CRAGGY volcanogenic massive sulphide property [2], NORTHAIR MINES LTD., under an option agreement with CHEVRON RESOURCES LTD., constructed an 850 metre airstrip and road connection to the Cirque from the airstrip. Reserves are estimated at 300 million tonnes averaging 1.5 percent copper and 0.08 percent cobalt with significant values in gold and zinc. Elsewhere in the Tatchenshini area, NORANDA EXPLORATION CO. explored several properties including drilling on three (Partan River [3], Mule Creek [4], and Red Mountain [5]. (Table 1).

In the ATLIN area, CANAVA RESOURCES LTD. completed 10 reverse circulation drill holes on the YELLOWJACKET gold prospect [6]. Free gold in quartz occurs within a structurally controlled stockwork type carbonate and quartz-carbonate alteration zone in Cache Creek Group 'greenstones'. During the winter of 1985, DE BAKA RESOURCES completed an 80 metre long adit on the HAPPY SULLIVAN gold property [7] to test irregular quartz veining with high grade gold and silver within a northerly trending shear zone which is about 40 metres wide and more than 3.2 kilometres long.

Photo 1 - Looking southwesterly over Mt. Henry Clay (Ag-Cu-Pb-Zn-Au-Ba) area, U.S.-Canada border north diagonally downslope along the ridge towards bottom left. Left corner of photo, Bear Creek M.C. drilling on Mt. Henry Clay ridge. Glacier to left (east) of border and Stryker drilling to right (west).

In the RANCHERIA area, REGIONAL RESOURCES LTD. and the current operator, NANISIVIK MINES LTD., continued to explore the MIDWAY Ag-Pb-Zn deposit (B) with emphasis on underground definition drilling on the Silver Creek north and south zones. A decline more than 1500 metres long has been completed in the Silver Creek Zone, from which approximately 17,200 tonnes of ore grading 363 grams of silver per tonne and 18 percent combined zinc and lead has been stockpiled. To date, greater than $13 million has been spent on this project and it is estimated that a further $50 million will have to be spent in the next one to two years before a production decision can be made. Regional Resources is aiming for a 3-fold increase in reserves of at least 2 million tonnes to begin production. Potential for mineralization exists over a 2.4 kilometre north-south length and an east-west width of 1.7 kilometres. Two tabular structures have been outlined in the South Zone, and comparisons are being made to the high-tonnage Midway manto (=mantle) replacement deposits of Mexico. The most important mineralization appears

PHOTO 2 - Looking northerly over Muddy Lake towards Bear Main Zone (centre of photo) and Fleece Bowl Zone (centre top of photo), MUDDY LAKE Au property. Landslide material located to right of photo, just east of Chevron's camp.

In the TATSAMENIE LAKE area, located approximately 140 kilometres southwest of Dease Lake, CHEVRON MINERALS LTD. drilled 31 holes totalling 4150 metres on its MUDDY LAKE gold prospect (15). Drilling was targeted along fault controlled silicified and dolomitized zones at the contact between Permian limestone and Pre-Upper Triassic volcanic rocks and associated sediments where significant "no-seeum" gold with minor silver mineralization occurs. Approximately half of the drilling consisted of exploration holes spaced 300 metres apart on the TOTEM claims, 2 kilometres to the north of Bear Main Zone. No significant mineralization was encountered during this phase of drilling although a few holes returned values in the 1-3 grams of gold per tonne range over widths of less than 2 metres. Four shallow holes were drilled on the Bear Main Zone to obtain fill-in information. The silicified-dolomitized rocks of the Bear Main Zone were extended to the north along the Bear Fault by drilling two holes 250 to 300 metres deep.

Weak gold mineralization in the 2-4 grams of gold per tonne range was intersected over widths of 5 to 7 metres. Additional surface trenching was carried out on the Bear Main Zone in order to obtain more closely spaced information and to expose more of the mineralized hanging wall. Six hand blasted trenches, together with drill core samples, provided material for metallurgical testing. A reserve figure may be released in early 1986. Regionally, Chevron explored several other gold bearing prospects, as did NORANDA EXPLORATION CO.

In the TOODOGGONE area, exploration and development expenditures during 1985 are estimated at $6.5 million, spread amongst six main operators and several smaller ones. The planned 71 km extension of the OMINECA RESOURCE ROAD from its present terminus at Mosquito Flats to Sturdee Airstrip in the Toodoggone was studied in detail, including on-site route selection and bridge crossings. Construction of the road is dependent upon a positive production decision by Serem Inc. on their Lawyers property, at which time the agreement between Serem Inc. and the Provincial Government will come into effect. At the LAWYERS property (116), all work was development oriented. On the AL property (17), ENERGEX MINERALS LTD. completed 1690 metres of BQ-size diamond drilling in 35 short holes on its THESIS III, BV and MONANZA RIDGE zones. Previously calculated reserves by Kidd Creek Mines were 145,120 tonnes grading 12.69 grams of gold per tonne, open pittable. On the THESIS III zone, 17 holes totalling 969 metres were drilled to test three west-parallel, 55-degree plunging quartz-barite-native gold bearing zones in clay altered hornblende-feldspar andesitic to dacitic tuffs. The central part of the altered zone was drilled over a strike length of 92 metres, a width averaging 9 metres, and a maximum vertical depth of approximately 40 metres. Native gold is primarily associated with replacement barite which averages 2 to 5 percent. Locally at depth, pyrite is abundant and trace amounts of native gold exist. Energex estimates the potentially open pittable zone has reserves of 250,000 tonnes with a minimum grade of 10.3 grams of gold per tonne over a strike length of 43 metres, and contains a total of 4,620,000 grams of gold. On the BV zone, 11 short holes totalling 450 metres were completed over a mineralized zone with a strike length of 160 metres and a width of up to 15 metres. Native gold is intimately associated with barite-filled fractures within silicified, pyritized and clay altered andesitic tuffs. On the MONANZA RIDGE area, 7 short holes totalling 271 metres were completed to test the small, high grade, structurally complex VERMONA zone and the GHOST zone which may have potential for a small open pit operation. Several high grade intersections were encountered in all three zones (e.g. 22.25 m grading 28.1 grams of gold per tonne, including a section of 11.28 m grading 53.5 grams of gold per tonne). The 1985 program increased the open pit tonnage potential and several altered and/or mineralized zones remain to be tested. On the SILVER POND Property (141), ST. JOE CANADA LTD. completed 23 drill holes totalling approximately 3000 metres on four zones: Cloud Creek, Amethyst, West, and North. 'Lower' and 'higher' level epithermal targets occur along regional, northwesterly trending faults. The Amethyst zone may be the southern

PHOTO 1 - View of AL property, Inverge Minerals Ltd., including BONANZA RIDGE, THESIS II, THESIS III, and P.R. zones.

trenching over a strike length of 800 metres and a maximum width of 11 metres in 'Toodoggone' andesitic tuffs. On the BAKER property (21), MULTINATIONAL RESOURCES, under an option agreement with DU PONT OF CANADA, completed 11 short holes totalling 610 metres designed to re-evaluate known vein systems, including Vein A, Vein B, Vein C, Vein D, and West Chappelle. Company reports indicate the discovery of a new vein in the vicinity of Vein B. The agreement includes an option on the existing 90 tonnes per day mill and the 80-man mining camp operation. Several other smaller programs were carried out in the Toddoggone during 1985.

In the JOHANSON LAKE-AITKEN LAKE areas, LORNEX MINING CORP. LTD., under an option agreement with GERLE GOLD, completed 16 drill holes totalling 943 metres on the McCONNELL CREEK gold prospect (22). Drilling was carried out on 25 metre centres in the Main Zone over a length of 335 metres; two, and possibly three gold zones have now been defined. The target is a shear zone with chlorite-quartz-carbonate-sericite alteration with fuchsite-tourmaline-bearing quartz veins and stringers mineralized with pyrite, minor chalcopyrite, galena, and native gold. The altered zone has been traced over a length of 4.8 kilometres, a width varying from less than 3 metres to more than 15 metres, and a vertical depth in excess of 300 metres. On the MAT property (23), CANASIL DEVELOPMENT CO. drilled 9 holes totalling 942.5 metres on three quartz vein structures within Triassic volcanic rocks. Silver values occur within quartz stringers, with No. 1 Vein at surface, grading 901.7 grams of silver per tonne across 0.34 metres.

In the ISKUT RIVER area, SKYLINE EXPLORATION LTD. conducted a major diamond drill program on the Stonehouse Gold and McFadden Float Zones of its REG polymetallic property (24), located 110 kilometres north of Stewart. Previous reserves were calculated at 505,200 tonnes grading 17.55 grams of gold per tonne. The Stonehouse Gold Zone, which includes Cloutier, Pick Axe, and 16 zones, is the main deposit and has been traced over a strike length of approximately 400 metres and a maximum width of 80 metres. The McFadden Float zone includes an area to the east where a new surface quartz exposure with high gold and silver values known as the 'Gold Rush Zone' was discovered on strike with Trench R 19. Additional tonnage is expected from the 1985 drilling program. On the HANK property (25), located just south of Ball Creek, LAC MINERALS LTD. completed 44 diamond drill holes totalling 3962 metres and surface trenching on epithermal and polymetallic ('transitional') targets designed to test the open pit potential. A northeasterly trending anomalous Upper zone has been identified over a surface length of 4000 metres and coincides with a 3000 metre long low silica, sericite-carbonate-pyrite alteration zone in altered Upper Triassic andesitic pyroclastic rocks and diorite. During 1984 a superimposed northwesterly trending epithermal gold anomaly known as "Hot Spot" was drilled. An intrusive source at depth is postulated to have been the heat pump and source of hydrothermal fluids which created the necessary plumbing system and the 'transitional' type mineralization which consists of sphalerite, galena, chalcopyrite, pyrite, minor tetrahedrite, and gold in a gangue of quartz, barite and carbonate. On the PAYDIRT property (26), located approximately 160 kilometres northeast of Stewart, CONSOLIDATED

SILVER STANDARD MINES LTD. completed 11 drill holes totalling 760 metres on a 90 metre long by 20 metre wide silicified, sericitized and pyritized alteration zone carrying very fine grained native gold in andesitic tuffs. The unnamed Upper Triassic volcanic rocks have been intruded by Upper Triassic and Jurassic syenites and by Jurassic and/or Cretaceous diorites to granodiorites. On the GOSSAN property (27), located approximately 100 kilometres north of Stewart, BRINCO LTD. completed 5 drill holes totalling 231.8 metres in areas testing surface mineralization at depth. Gold mineralization was found in quartz veins within andesitic tuff and agglomerate and in zones rich with pyrite, sphalerite and chalcopyrite. The best intersection was hole GO 85-3 which over its entire length of 74.7 metres averaged 1.97 grams of gold per tonne and 37.2 grams of silver per tonne, with the highest grade intersection within being 5.6 metres of 4.13 grams of gold per tonne and 251.6 grams of silver per tonne.

In the STEWART area, NEWHAWK GOLD MINES and LACANA completed 29 drill holes totalling 3982.5 metres on their SULPHURETS joint venture (28), located approximately 80 kilometres northwest of Stewart. At least 18 areas of precious and base metals mineralization are known on the property. Two main styles of precious metals mineralization exists over a length of at least 7 kilometres: epithermal veins and 'transitional' porphyry. On the Snowfield Zone, reserves were estimated at 20 million tonnes grading 2.75 grams of gold per tonne, and drilling of 5 holes during 1985 has tentatively confirmed the potential of this large, low grade deposit in highly pyritized and carbonitized volcanic and intrusive rocks to depths of at least 150 metres. On the Brucejack Zone, which includes the Near Shore and West Zones, reserves are estimated to be in excess of one million tonnes grading 24 grams of gold equivalent per tonne. Twenty-two drill holes were completed in 1985 on the West Zone which has now been tested over a strike length of more than 300 metres and a vertical depth of more than 100 metres. High grade gold-silver mineralization occurs in a structurally controlled epithermal quartz-carbonate-breccia zone within lower Jurassic sandstones, intermediate volcanic fragmental rocks and intrusives that have been intensely altered to an assemblage of predominantly quartz, sericite, and carbonate. Several high grade intersections have been obtained including 7 metres grading 67.54 grams of gold per tonne and 8947 grams of silver per tonne. On the Gossan Hill epithermal zone, 2 drill holes produced good results, including 1.2 metres grading 373.7 grams of gold per tonne gold and 377.14 grams of silver per tonne at a depth of 78.6 metres. This zone sits parallel to the West Brucejack Zone and may be a faulted extension. On the Sulphurets Breccia Zone, reserves are estimated at approximately 18 million tonnes grading 2.75 grams of gold per tonne in a porphyry copper-gold setting. Bulk samples have been submitted for assaying and preliminary metallurgical testing was begun. Drilling from the ice of Brucejack Lake is planned for the winter to test for extensions of the Near Shore Zone. A logging company has constructed a road from Highway 37 westerly to within 16 kilometres of the property, thus considerably improving access. On the KERR property (29), which adjoins the Brucejack Zone to the west, BRINCO LIMITED completed 3 diamond drill holes totalling 190 metres in two areas underlain by siliceous andesites which are geochemically anomalous in gold. Sampling soil and talus fines identified 4 anomalous areas where values up to 40

grams of gold per tonne were recorded. Several hand trenches totalling 348 metres were excavated, most within two areas. The best assay was 8 metres of 8.1 grams of gold per tonne. On the SILBAK PREMIER gold-silver prospect (30), WESTMIN RESOURCES completed 28 drill holes totalling 2467 metres, plus 528 metres of trenching, mainly within the Glory Hole mineralized zone. The work was aimed at upgrading the open pittable reserves released in December, 1984 which stand at 3,895,565 tonnes drill indicated grading 2.434 grams of gold per tonne and 119.4 grams of silver per tonne. Results continued to be encouraging and a further large surface and underground exploration program is planned for 1986. This epithermal deposit is hosted by altered Jurassic volcanic and subvolcanic rocks. On the PROSPERITY-PORTER IDAHO prospect (31), TECK CORP., under an option agreement with PACIFIC CASSIAR LTD., completed approximately 1320 metres of underground drilling in 17 holes and 3147 metres of surface drilling in 16 holes to firm up existing reserves totalling 826,277 tonnes grading 668.56 grams of silver per tonne located in three major vein structures. The Prosperity Zone is estimated to contain 238,768 tonnes grading 905.12 grams of silver per tonne and the D zone to contain 571,047 tonnes grading 569 grams of silver per tonne. Teck is apparently looking for at least 1 million tonnes grading 686 grams of silver per tonne to warrant a combination access route and haulageway into the area from the old Silverado workings that would include 1.93 km of underground access. Mineralization occurs as lenses up to 12 metres wide, with high silver to lead ratios, and high grade bands near the hanging wall and footwall of the vein structures. Work on the SILVER BUTTE (32) prospect by TEMAGEN SILVER CORP., under an option agreement with ESSO MINERALS CANADA LTD. and, on the INDIAN prospect (33) by ESSO MINERALS CANADA LTD. is summarized in Table 3.

In the QUEEN CHARLOTTE ISLANDS, PROCAN EXPLORATIONS LTD. explored the Y7 and Bell II properties (34) (Table 1) which straddle the suspected trace of the Sandspit fault system in search for epithermal type mineralization similar to that in Tarsun and possibly Masset volcanics. The IKEDA skarn prospect (35), located just north of the old Jedway mine, was explored by FALCONBRIDGE LTD. (Table 1). Mapping and drilling indicate that typical skarn lenses are small (20m X 20m X 20m) and tend to be structurally controlled with erratic precious metal values. On the SNOW prospect (36) (Table 1), located a few kilometres south of Sandspit, LORNEX MINING CORP. LTD. confirmed the presence of precious metal mineralization identified in trenches by previous operators. The best intersection obtained in drilling was 4.8 grams of gold per tonne and 4.6 grams of silver per tonne over 0.7 metres. Several other significant but widely spaced intersections assaying 0.7 to 3.4 grams of gold per tonne were also encountered but the erratic distribution of the mineralization has made correlation difficult.

On BANKS ISLAND, TEACHS RESOURCES CORP. conducted a program of diamond drilling and trenching on its YELLOW GIANT gold property (37) wherein 10 gold deposits have been located. Bulk tonnage, disseminated gold deposits (Rim Zone) occur in highly fractured granitic rocks, while high grade gold veins (Discovery, Tel and Bob zones) occur in metasedimentary rocks and associated skarns. Ore reserves for the Discovery Zone are estimated at

TABLE 1
EXPLORATION AND DEVELOPMENT IN NORTHWESTERN DISTRICT, 1985

*note - prospect numbers are keyed to Figure 2

PROSPECT NUMBER	PROPERTY NAME OWNER/OPERATOR	MINING DIVISION	LOCATION LAT.	 LONG.	 NTS	COMMODITY	DEPOSIT TYPE IF KNOWN	WORK DONE/REMARKS
1	Tsirku A. Jarvis (Mt. Henry Claim) (Stryker Resources Ltd.)	Atlin	59°22'	130°55'	114P/16NW	Ag/Au/Cu/Pb/Zn/Ba	polymetallic massive sulphide (volcanogenic)	5 drill holes totalling 650 metres on low gravity area; geophysical surveys in Grizzly Heights area.
2	Windy Craggs (Northair Mines)	Atlin	59°44'	131°44'	114P/12E,W	Au/Cu/Co/Zn	massive sulphide (volcanogenic)	Construct airstrip approx. 650 metres length, road construction same to airstrip.
3	Barton River (Noranda Explor. Co.)	Atlin	59°43'	130°45'	114P/10E	Au	vein	Geophysics, geochem, diamond drilling.
4	Mile Creek (Noranda Explor. Co.)	Atlin	59°38'	130°35'	114P/9E	Au/Ag/Cu	massive sulphide	Geophysics, geochem, 5 drill holes.
5	Dall Mountain (Pair) (Noranda Explor. Co.)	Atlin	59°42'	131°02'	114P/11	Au/Cu/Mo/Co/Ag	massive sulphide skarn	Geophysics, geochem, 3 drill holes totalling approx. 600 metres.
6	Yellowjacket (Canico Resources)	Atlin	58°51.5'	133°35'	104K/15	Au	vein stockwork(?)	Geophysics, geochem, 10 reverse circulation drill holes.
7	Union Sullivan (Du Pont Canada)	Atlin	59°00'	134°12'	104K/4	Au/Ag	vein	Underground exploration - 305 adit.
8	Midway (Imperial Resources)	Liard	58°55'	130°30'	104O/16	Au/Pb/Zn/Ag	vein (skarn)	Underground exploration, surface drilling. Preliminary feasibility study. Ore shipped(?).
9	Littlerock (A.E.) (Imperial Resources)	Liard	58°41'	130°12'	104O/10W	Au/Ag	vein	Geochem, geophysics, reverse circ. drill holes.
10	Lucerne (Cone) (Placer Dome)	Liard	58°16'	129°40'	104O/4	Au/Ag	vein	Geological mapping, trenching, drilling (25 holes), underground exploration, road construction.
11	Thyme (Imperial Resources)	Liard	58°22'	129°59'	104O/5E	Au/Ag	vein	Surface and underground sampling from previous drilling and trenching.

MAP NUMBER	PROSPECT NAME (ALTERNATE NAME)	MINING DIVISION	LOCATION LAT.	LONG.	NTS	COMMODITY	STAGE (AS OF 1988)	WORK DONE/REMARKS
12	Eriksen-Esso (Eriksen Gold Mines)	Liard	59°15'	128°45'	104I/5E	Au/Ag	past	Road construction, trenching.
13	Patricia Lake (Lynx Mines Ltd.)	Liard	59°11'	128°22'	104I/1W	Cu/Zn/Ag/Au	massive sulphide (volcanogenic)	Field data collection for stage II environmental study. Acid-base survey with test pits. Stage II completion. Mineral lead mineralization.
13	Nikko (Nikko Exploration)	Liard	59°27'	128°35'	104I/1E	Cu/Zn/Ag/Au	massive sulphide (volcanogenic)	10 drill holes totalling 591 metres to test geophysical anomalies.
14	DM (Noranda Exploration)	Liard	59°22'	129°25'	104I/1W			
14	NSim (Noranda Exploration)	Liard	59°22'	129°15'	104I/2			
14	Inca (Noranda Exploration)	Liard	59°06'	129°36'	104I/2			
14	Turnagain Lake Group (Noranda Exploration)	Liard	59°10'	129°04'	104I/2			
14	Jetties Lake (Noranda Exploration)	Liard	59°15'	129°57'	104I/2W			
15	Muddy Lake - Tofino Silica	Atlin	59°16'	132°22'	104K/1W	Au	vein	11 drill holes totalling 4390 metres, surface trenching and metallurgical testing.
15	Muddy Lake - Coal Mine, Tibbow, Dort (Chevron Canada Resources)	Atlin	59°13'	132°11'	104K/1W	Au	vein (disseminated)	
16	Jewell (Jewell Inc.)	Atlin	57°25'	131°12'	104K/6E	Au/Ag	epithermal	Underground development including a new crosscuts and drifting, metallurgical studies, road access study.
17	Al (Cheniere Minerals)	Omineca	57°28'	127°23'	94L/5E	Au	epithermal (vein)	33 drill holes totalling 4070.4 metres, trenching, dry bed fines, underground sampling.

In the HOUSTON-SMITHERS area, NORANDA EXPLORATION CO. LTD., under an option agreement with CANADIAN UNITED MINERALS CO., tested geochemical and geophysical targets on the Forks, Hawk, Hoopes, Bassline and Cabin Zones of the DOME MOUNTAIN gold property (38) (Table 1). Very erratic native gold and base metals occur in quartz veins which average 1 metre in width and are hosted in Lower Jurassic Hazelton Group andesitic flows, tuffs, argillites and siltstones. Average grades are 17 grams of gold per tonne. On the BUCK CREEK polymetallic prospect (39), (Table 1) located 18 kilometres south of Houston, BP/SELCO explored an arcuate complex quartz-feldspar porphyry or feldspar porphyry dyke system which has intruded intermediate volcanic and sedimentary rocks of probable Hazelton Group age. Pyrite-marcasite-sphalerite veinlets carry low grade gold-silver concentrations related to fracture zones within a large pyrite-sericite-clay-carbonate alteration zone. The best mineralization appears to be associated with brecciation in the quartz-feldspar porphyry in the form of infilling of interstices by predominantly sphalerite, pyrite, carbonate, sericite, and minor galena. The target is a large tonnage, low grade, bulk mineable deposit. On the FENTON CREEK prospect (40), located 80 kilometres south of Smithers, VITAL PACIFIC RESOURCES LTD. completed 6 drill holes totalling 820 metres in search for a polymetallic geochemical target and the source of massive sulphide float located by previous operators. On the MINERAL HILL prospect (41), DAFFREY RESOURCES LTD. conducted a large percussion drilling and surface trenching program to identify precious metals bearing targets of 'Transitional' to Vein types in areas of brecciated intrusive and volcanic rocks. Previous operators have identified both a porphyry molybdenum zone and a high grade precious-base metal bearing quartz vein zone. On the GAUL polymetallic prospect (42), located immediately south of Equity Silver Mines, TECK CORPORATION, under an option agreement with MAVERICK RESOURCES and EQUITY SILVER MINES LTD., completed 4 drill holes to test for the southerly extension of Equity-type mineralization. Drilling confirmed the presence of favourable geological units and structures plus the existence of weak to moderate polymetallic mineralization. On the NEW MOON prospect (43), located 100 kilometres south-southwest of Smithers, NEWMONT OF CANADA EXPLORATION, under an option agreement with C. KOWALL, conducted detailed mapping, prospecting, magnetometer surveys, trenching, and sampling of several epithermal vein-type deposits. Semi-massive copper sulphides in a volcanogenic setting are known elsewhere on the property. On the FRENCH PEAK prospect (44) (Table 1), SILVERADO MINES LTD. intersected weak to moderate silver-bearing mineralization in highly bleached zones by drilling an epithermal quartz vein system around the "Ute Vein". Other smaller sized programs were carried out in the area (Table 1).

In the KENNY DAM area, RIO ALGOM EXPLORATION LTD. and KERR ADDISON MINES LTD. explored the WOLF (46) and TROUT (47) prospects respectively (Table 1). Both properties are epithermal quartz vein targets in Ootsa Lake Group intermediate to felsic volcanic rocks.

Coal

At the KLAPPAN anthracite property (Lot 1, 2003 CANADA RESOURCES INC. completed 11 diamond drill holes totalling 4,007 metres and rotary drilling totalling 1,524 metres. Trenching and trenches were done throughout the property and 24 outcrop samples were collected from the best ore reserve areas. Approximately 15,000 tonnes of coal was mined from the test pit and transported to the concrete preparation facility, before being transported to Kitwanga at Stewart. In October 1985, a Stage I report was filed with the Environment Department. In the Groundhog area, CONCOR INC. completed geological mapping on its MOUNT JACKSON anthracite prospect. In an area located southwest of the Klappan property and 40 kilometres northwest of Dease Lake in the Bell Irving River, ESSO RESOURCES CANADA LTD. conducted a program of geological mapping and trenching on its SWEENY property. In the SKEENA bituminous coal property (41), located southwest of Smithers, CROWNBRIDGE MINERALS LTD. completed 2 drill holes totalling approximately 300 metres. CROWNBRIDGE also filed a Stage II Report on their SKEENA bituminous coal property. Smaller programs were conducted on the TOMAR (56), MOUNTAIN VIEW and FALCON properties.

Placer

At the ATLIN placer property (Notice 53), about the same as 1984. In the DEASE LAKE and ATLIN areas, placer notices totalled 47 with the largest operation being that of PEAK RESOURCES on the Hyland River (50).

Notices of Work

The total number of Notices of Work on Mineral Claims filed to November 1985 for northwestern and northwestern B.C., is down approximately 10 percent from the same time in 1984. Drill programs are about the same level as 1984. Total drilling in metres is estimated to exceed 50,000 metres as compared to 60,000 metres in 1984.

TABLE 2
LEVEL OF ACTIVITY IN NORTHWESTERN BRITISH COLUMBIA, 1985
(derived from Notices of Work on Mineral Claim, Form 9-10)

Mining Division	1983 Min.	1983 Coal	1983 Drill	1983 Placer	1984 Min.	1984 Coal	1984 Drill	1984 Placer	1985 Min.	1985 Coal	1985 Drill	1985 Placer
Atlin	16	-	1	80	44	-	7	65	30	-	10	68
Liard (a)	16	-	2	56	32	-	10	39	39	-	22	41
Skeena	76	4	39	5*	107	4	32	1*	80	7	22	-*
Omineca	26	-	12	1	91	-	14	4	44	-	11	6
Total	134	4	42	137	274	4	63	109	193	7	65	115

*Does not include Bonanza and Lloyd (Germansen Landing - Manson Creek).

TABLE 1
ACTIVE METAL MINES IN NORTHWESTERN DISTRICT, 1985

PROPERTY NUMBER	MINE	COMPANY	LOCATION LAT.	LOCATION LONG.	NTS	COMMODITY	DEPOSIT TYPE	PRODUCTION AND DEVELOPMENT DATA
11	Eskay Creek	Eskay Creek Mines Ltd.	56°48'	130°30'	104A/8E	Au,Ag	vein	150 tonnes/day @ 0.51 oz Au
11	Tauros	Tauros Resources	56°50'	130°32'	104A/8E	Au,Ag	vein	150 tonnes/day @ 0.5 oz Au
12	Equity Silver	Equity Silver Mines Ltd.	54°13'	127°10'	93L/9W	Ag,Au,Cu,Zn	[illegible]	2000 tonnes per day @ 1.04 oz Ag, 1.0 gr Au and .33% Cu
13	Bell Copper	MacLaren Forest Products	55°33'	128°34'	103I/1	Cu,Au	porphyry	Reserves estimated @ 17,618,400 tonnes containing .174% Cu and .015 oz/ton Au, 2 open pits
14	Cassiar Asbestos	Cassiar Mining Corp.	59°14'	129°41'	105P/5W	Asbestos	Ultramafic	2400 tonnes per day
15	Surprise Mine	K. Kindrat	54°45'	127°07'	93L/14W	Au,Ag,Cu,Pb,Zn	vein	intermittently operated, 200 tonnes/year

DEVELOPMENTS

Development work was carried out on SEREM INC's LAWYERS (16) high grade epithermal gold-silver deposit in the TOODOGGONE 'camp', approximately 300 kilometres north of Smithers. Serem spent approximately $2.5 million on development, environmental, and road design studies. The project was supported by Hercules aircraft in June and October. Underground development restricted to the Amethyst Gold Breccia Zone, consisted of a total of 418 metres of crosscuts on two new levels (1700 metre and 1800 metre), 201 metres of drifting on the 1700 and 1800 Levels, and 178.6 metres of raising connecting all levels to the surface, a vertical distance of approximately 150 metres. This work confirmed the continuity of mineralization on the 1700 and 1800 Levels and between the levels. In addition, approximately 92 metres of underground diamond drilling were completed in 12 holes on the 1700 and 1800 Levels to delineate mineralization boundaries outside the walls of the drifts. The 1800 Level consists of a 107 metre crosscut plus two drifts 60 metres north and 68 metres south. The 1750 Level completed in previous years consists of approximately 762 metres of advance and slash. The 1700 Level consists of a 250 metre crosscut plus two drifts 50 metres north and 45 metres south. Previously estimated reserves for the AGB Zone were 509,600 tonnes grading approximately 7.2 grams of gold per tonne and 260 grams of silver per tonne. Some spectacular mineralization grading in excess of 70 grams of gold per tonne and 1000 grams of silver per tonne, was encountered in the new developments. Serem also completed fieldwork including millsite, tailings disposal, and camp location site investigations in preparation for compilation of a Stage I Report, expected to be filed before the end of the year. A final feasibility study is also expected before the end of the year. Extension of the OMINECA RESOURCE ROAD 71 km from Moosevale Flats to Sturdee Airstrip is dependent on these submissions. Assuming a positive decision, construction of the road could begin by Spring 1986.

Producers

ERICKSON GOLD MINE (51) (Au-Ag) operated at approximately 136 tonnes per day at an average mill head grade of 8.57 grams of gold per tonne (Table 3). The mill is capable of handling 270 tonnes per day. Feed has been from the Bear Vein which is estimated to average 17 grams of gold per tonne but blending with lower grade material has resulted in an overall average grade of around 10 grams of gold per tonne.

TAURUS MINE (11) (Au-Ag) operated at approximately 136 tonnes per day at an average grade of 10.3 grams of gold per tonne. An additional ball mill was installed increasing the plant rated capacity to 270 tonnes per day. Since the installation of a cyanide circuit in April 1985, production in the five months to August 31, amounted to 143,997 grams of gold from approximately 18,140 tonnes of ore grading 7.2 grams of gold per tonne.

EQUITY SILVER MINE (52) (Ag-Au-Cu-Sb) operated at 5600 tonnes per day. Mine reserves at January 1, 1986 are estimated at 17,978,000 tonnes grading 106.5 grams of silver per tonne, 1.00 grams of gold per tonne and 0.33 percent copper. The gold scavenger plant has operated since March 1985. It is currently being upgraded to improve operating results particularly in the area of cyanide destruction. Construction to modify the mill began in September 1985. Work is on schedule and is expected to increase the mill throughput to 7680 tonnes per day by July 1986.

BELL COPPER MINE (53) (Cu-Au) re-opened officially on September 24, 1985 at a milling rate of 17,000 tonnes per day. Reserves are estimated at 17,414,400 tonnes grading 0.509 percent copper plus about 0.69 grams of gold per tonne giving a mine life of 38 months. Reserves of ore will be depleted at this time and final abandonment of the property will begin. The workforce at Bell Mine is 230 people.

DUTHIE MINE (54) (Au-Ag-Pb-Zn-Cu-Cd) operated intermittently during the summer of 1985. Approximately 1079 tonnes of ore was mined from underground of which 129 tonnes was shipped to the Trail Smelter. The remaining 950 tonnes were processed at the Duthie concentrator. A total of 1600 tonnes of ore was processed of which 650 tonnes came from a low grade stockpile; 138 tonnes of concentrate were shipped to Trail. In addition, 35 tonnes of concentrate, produced from custom milling 250 tonnes of ore from the adjoining VICTORY MINE was shipped to the Trail smelter.

CASSIAR ASBESTOS MINE (55) (Asbestos) operated at about 4500 tonnes per day. Underground exploration on the McDame deposit continued with the driving of an 1100 metre adit. In 1984 reserves for this newly found deposit were calculated at 15.4 million tonnes probable and 46.7 million tonnes possible with the deposit still open to the east and south.

ENDAKO MINE (Mo) remained closed indefinitely.

KITSAULT MINE (Mo) remained closed indefinitely.

CENTRAL DISTRICT
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INTRODUCTION

There was a 13 percent decrease in mineral exploration programs in the district compared to 1984. Decreased activity in the CARIBOO was offset by increases in the OMINECA and CLINTON Mining Divisions. The number of major programs increased slightly, so that total exploration expenditures were probably not much below 1984 levels. Precious metals once again were dominant exploration targets. Placer operations were down 26 percent from 1984, reflecting the continued stability in gold prices. There was also an increase in hand operations, suggesting a shift from speculative to recreational activity.

With the exception of one major program for rare earths in a carbonatite, there was little interest in industrial minerals and stone this year, with several operations in receivership or financial difficulties.

REGIONAL GEOCHEMICAL SURVEY RELEASE

The Regional Geochemical Survey for NTS 93G (east half) and 93H (west half) was released on June 17, 1985, and generated more activity than had been anticipated. A total of 1071 claim units and 86 2-post claims were staked on or after the release date. An area of the Quesnel Trough southwest of Hixon and the eastern edge of the Slide Mountain terrane in the Bowron River valley attracted the most staking.

EXPLORATION

Minerals

There was a decrease of 38 percent in programs in the CARIBOO, mostly in low-budget junior company activity in the Quesnel Trough, due to a combination of poor results and a decrease in venture capital available through the Vancouver Stock Exchange. DOME completed 17 holes totalling over 3000m on the QR (56) porphyry-related gold deposit, looking for possible extensions to the MAIN ZONE. DOME also completed a major program of geochemistry, geophysics, trenching, and drilling on a number of targets on their BULLION LODE (57) gold prospect west of Likely, looking for large tonnage disseminated mineralization in Takla Group basalts. Results were incomplete at time of writing. MT. CALVERY continued to explore their large claim block in the Spanish Lake area east of Likely, concentrating on the CPW option and PESO claims (58). Over 3300m of reverse circulation rotary drilling, 600m of diamond drilling and 1400m of trenching were completed, with largely encouraging results. Native gold occurs in pyrite associated with quartz veinlet swarms in Upper Triassic shales. Approximately one

TABLE 4
EXPLORATION AND DEVELOPMENT IN CENTRAL DISTRICT, 1985

*note - prospect numbers are keyed to Figure 2

PROSPECT NUMBER	PROPERTY NAME OWNER/OPERATOR	MINING DIVISION	LOCATION LAT.	LOCATION LONG.	LOCATION NTS	COMMODITY	DEPOSIT TYPE IF KNOWN	WORK DONE/REMARKS
56	QR Deposit (Dome Exploration Canada Ltd.)	Cariboo	52°40'	121°47'	93A/12W	Au	alkali-porphyry related	Over 3000m drilled in 17 holes.
57	Bullion Lode (Dome Exploration Canada	Cariboo	52°37'	121°41'	93A/12E	Au	bulk mineable	Geochemistry, geophysics, over 1700m drilled in 17 holes.
58	QPW Option-Peso Claim (MT. Calvery Resources)	Cariboo	52°35'	121°27'	93A/12E	Au	pyritic shales	1400m trenching, 665m DDH in 7 holes, 3350m reverse circ rotary 37 holes.
59	Fraserqold (Eureka Resources)	Cariboo	52°20'	120°35'	93A/7E	Au	gold in phyllites	IP, trenching, deep overburden, geochemistry.
60	Taylor Windfall (Westmin-Esso Canada joint venture)	Clinton	51°06'	123°20'	92O/3	Au/Ag	epithermal ps	Staking, soil geochemistry, alteration studies, selected geophysics, 28lm DDH in 2 holes.
61	Phil Claims-Heidi option (BP Canada Inc.)	Omineca	55°06'	124°03'	93N/1E	Cu/Au	alkali porphyry related	Road construction, over 1600m trenching.
62	Aley (Cominco Ltd.)	Omineca	56°27'	125°40'	94B/5W	Nb, rare earths	carbonatite	See Z.D. Hora, this publication.
63	Blackdome Mine (Blackdome Expl. Ltd.)	Clinton	51°20'	122°24'	92O/7,8	Au	epithermal quartz veins	Construction of camp, tailings and mill.
67	Tanks Peak-Roundtop Mtn. (Suncor)	Cariboo	52°51'	121°25'	93A/14W	Au	quartz vein	Lightweight drill, 7 sites.
68	Bob claims (Lac Minerals Ltd.)	Cariboo	52°55'	123°37'	93B/13E	Au	quartz vein	19 percussion holes, up to 7m each.
69	Tex claims (Brinco Ltd.)	Clinton	51°35'	123°45'	92O/12	Au	epithermal	Geochemistry (soil and rock), 4 percussion holes, 592m.
71	Microsil (in receivership)	Cariboo	52°56'	122°55'	93B/15E	diatomite	sedimentary	Processed material only.

TABLE 5
EXPLORATION AND DEVELOPMENT IN CENTRAL DISTRICT, 1985

*Note - prospect numbers are keyed to Figure 2

PROSPECT NUMBER	PROPERTY NAME OWNER/OPERATOR	MINING DIVISION	LOCATION LAT.	LOCATION LONG.	NTS	COMMODITY	DEPOSIT TYPE IF KNOWN	WORK DONE/REMARKS
56	QR Deposit (Dome Exploration Canada Ltd.)	Cariboo	52°40'	121°47'	93A/12W	Au	alkali-porphyry related	Over 3000m drilled in 17 holes.
57	Bullion Lode (Dome Exploration Canada	Cariboo	52°37'	121°41'	93A/12E	Au	bulk mineable	Geochemistry, geophysics, over 1700m drilled in 17 holes.
58	CSW Option-Peso Claim (Mt. Calvery Resources)	Cariboo	52°35'	121°27'	93A/12E	Au	pyritic shales	1400m trenching, 665m DDH in 7 holes, 3350m reverse circ rotary 37 holes.
59	Frasergold (Eureka Resources)	Cariboo	52°20'	120°35'	93A/7E	Au	gold in phyllites	IP, trenching, deep overburden, geochemistry.
60	Taylor Windfall (Westmin-Esso Canada joint venture)	Clinton	51°06'	123°20'	92O/3	Au/Ag	epithermal ore	Staking, soil geochemistry, alteration studies, selected geophysics, 281m DDH in 2 holes.
61	Phil Claims-Heidi option (BP Canada Inc.)	Omineca	55°06'	124°03'	93W/1E	Cu/Au	alkali porphyry related	Road construction, over 1600m trenching.
62	Atey (Cominco Ltd.)	Omineca	56°27'	123°40'	94B/5W	Nb, rare earths	carbonatite	See Z.D. Hora, this publication.
63	Blackdome Mine (Blackdome Expl. Ltd.)	Clinton	51°20'	122°29'	92O/7,8	Au	epithermal quartz veins	Construction of camp, tailings and mill.
67	Tanks Peak-Roundtop Mtn. (Suncor)	Cariboo	52°51'	121°25'	93A/14W	Au	quartz vein	Lightweight drill, 7 sites.
68	Rob claims (Lac Minerals Ltd.)	Cariboo	52°55'	123°37'	93G/13E	Au	quartz vein	19 percussion holes, up to 75m each.
69	Tas claims (Brinco Ltd.)	Clinton	51°35'	123°45'	92O/12	Au	epithermal	Geochemistry (soil and rock), 4 percussion holes, 692m.
71	Microsil (In receivership)	Cariboo	52°36'	122°35'	93G/15E	diatomite	sedimentary	Processed material only.

million tonnes of open pittable, drill indicated and possible ore grading 3 grams of gold per tonne or better has been outlined, with good geological potential for substantial additional tonnage. EUREKA RESOURCES resumed work on the FRASERGOLD property (59) after AMOCO dropped its option. Eureka concentrated on the northwest end of their property, with a program of trenching, deep overburden sampling and selected IP. They have now established a number of anomalous gold zones over a strike distance of 10 kilometres in Upper triassic phyllites.

In the CLINTON Mining Division, most of the activity was in the Taseko Lakes-Upper Taseko River valley area. WESTMIN RESOURCES and ESSO CANADA in a joint venture, staked additional ground and completed a program of mapping, geochemistry, geophysics, and limited drilling on the TAYLOR-WINDFALL property (60). The targets are epithermal precious metal vein systems, in Kingsvale Group pyroclastic rocks.

In the OMINECA Mining Division, there were a number of mostly low-budget programs northwest of Germansen Landing, with the targets being sediment hosted or vein precious metal deposits. The increase in activity here is in part a spill-over of activity from the Toodoggone camp. B.P. CANADA INC., IMPERIAL METALS, NORANDA, and SUNCOR had a number of low-budget programs on widely scattered properties. B.P. CANADA INC. built a road into their PHIL CLAIMS-HEIDI OPTION (61) and completed over 1500m of trenching with mixed results. Disseminated copper-gold mineralization in at least three zones in Takla Group greenstones appears to be related to an alkali porphyry phase of the Mt. Milligan stock.

In the northeast, COMINCO continued a major program on their ALEY (62) carbonatite property located in the upper reaches of the Aley River, northeast of Williston Lake. The property is underlain by Lower Paleozoic clastic sedimentary rocks and the carbonatite intrusive complex is approximately 4 km in diameter, concentrically zoned and carries significant Niobium and Rare Earth mineralization.

DEVELOPMENTS

BLACKDOME EXPLORATION, following a favourable feasibility study and successful financing, began construction at the BLACKDOME MINE gold and silver property (63). Epithermal precious metal-quartz veins of the "bonanza" type are hosted by Eocene felsic to intermediate calcalkaline flows and pyroclastic rocks. Two veins of the 12 known vein systems - the No. 1 and No. 2 veins - have been extensively explored and developed to date, with proven and probable reserves of 185,000 tonnes grading 27.2 grams of gold per tonne and 128.9 grams of silver per tonne, cut and undiluted. A 21 percent dilution is planned. Mining by trackless cut and fill at a rate of 180 tonnes per day is due to commence in mid 1986.

PRODUCERS

ENDAKO (64) molybdenum mine continued on an indefinite shutdown. GIBRALTAR (65) continued to mine the last of the higher grade copper and molybdenum ore in the GIBRALTAR EAST and WEST pits. MOSQUITO CREEK GOLD MINE (66) re-opened in July with production at 50 tonnes per day grading 15.5 grams of gold per tonne. A number of ore bodies missed by previous exploration efforts are being found by underground S.P.

AURUN MINES (70) produced over 2000 tonnes from their perlite quarry. Activity at MICROSIL's (71) diatomite quarry was limited to sale of processed material from stock, and limestone quarries in the district were closed except for occasional small contracts.

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INTRODUCTION

Coal exploration activity in the northeast continued at a low level into 1985 due to continuing depressed world markets for coal. More coal licenses were dropped, notably the CARBON CREEK property of UTAH MINES LTD. which had earlier received Stage II approval for mine development.

Significant work was performed by four companies on 8 Notices of Work. Three companies (Quintette, Teck, Crowsnest) did drilling. Significantly QUINTETTE COAL LTD. drilled roughly 50 percent more exploration holes than in the previous year. Outside of the minesite Quintette's exploration program accounted for 5 (63 percent) of the Notices of Work, 88 percent (2252m) of the meterage in diamond drilling, and 89 percent (9250m) of the meterage for rotary drilling. The two operating coal companies, QUINTETTE COAL LTD. and TECK BULLMOOSE CORP. were responsible for all of the 124 exploration holes drilled, save one.

COAL EXPLORATION

A summary of exploration statistics is presented in Table 6.

Quintette Coal Limited

Quintette's 1985 exploration activity involved $2.4 million capital costs in drilling and related work such as geophysical logging. The SHIKANO deposit was the focus of activity. Quintette's work is summarized as follows:

Shikano (78)

The company's near term plans to commence open pit mining operations in the Shikano deposit located 2 kilometres west of the preparation plant were supported by two exploration programs this year. Work completed in this area is summarized as follows:

	ROTARY DRILLING		DIAMOND DRILLING		ADITS	
	# of holes	metres	# of holes	metres	# of adits	metres
Pre 1985	29	2821	17	2458	4	217
1985	68	7903	8	1355	1	52
TOTAL	97	10,724	25	3813	5	269

TABLE 6
COAL EXPLORATION ACTIVITY, NORTHEAST DISTRICT, 1985

MAP REFERENCE NUMBER	OWNER/OPERATOR	LOCATION	REMARKS
	QUINTETTE COAL LTD.		
78	Shikano	56°58'N; 120°00'W	68 rdh (7903m); 8 ddh (1355m); 1 adit, geological mapping.
79	Quintette Trend	54°53'N; 120°52'W	2 ddh (334m); 11 rdh (622m).
77	Transfer	55°00'N; 121°06'W	2 ddh (298m).
	TECK CORP.		
75	Burnt River	55°25'N; 121°49'W	32 rdh (1065m); 2 test pits (34,000 ton bulk sample.
	CROWS NEST RESOURCES		
80	Onlor Lake	54°42'N; 120°50'W	1 ddh (265m); seismic survey for overburden thickness.
	B.P./SELCO		
74	Rocky Creek	55°18'N; 121°51'W	geological mapping; resistivity survey for coal subcrop.
	LOSSAN EXPLORATION		
72	Lossan	55°25'N; 122°13'W	Hand trenching.

Quintette Trend (/9)

The Quintette trend area comprises the southwest limit of the Waterfall Creek syncline and was initially mapped with the aid of limited trenching and drilling during 1973 and 1974. The deposit dips uniformly at 65° over a strike length of about 15 kilometres and is bisected by Babcock Creek. Work during 1985 consisted of aerial photography and subsequent 1:2500 scale topographic coverage as well as 2 diamond drill holes totalling 334 metres and 11 rotary drill holes totalling 622 metres in that portion of the deposit southeast of Babcock Creek. The work completed further confirmed the presence of 6 mineable coking coal seams in the Gates Formation with no major faulting at depth.

Transfer Area (77)

Two helicopter supported diamond drill holes totalling 298 metres were completed in a Gates Formation section approximately 2 kilometres west of the transfer point on Q.C.L.'s overland conveyor system. Only regional mapping had been completed prior to this work which has indicated a near surface anticline in the area. Drilling confirmed up to 3 coal seams in the Gates Formation with an aggregate thickness of 16-17 metres.

EXPLORATION BY OTHER COMPANIES

On the BURNT RIVER property (73) TECK CORP. drilled 19 holes for coal quality definition in the northeast section of the main reserve block. Seventeen of the 19 holes were redrills of old holes. At the south end of the main reserve block 13 rotary holes were drilled to define coal quality and structure in the vicinity of two test pits. Seventeen thousand tons of the combined "upper" and "lower" seams were removed from each pit; crushed, screened, sized, and sent to Korea in a marketability study. This thermal "stoker" coal from the Gething Formation is semi-anthracite in rank and contrasts with the lower rank and higher volatile content of all other northeast coals.

On the ROCKY CREEK licences (74) Les Smith and Associates performed work on behalf of B.P. SELCO. Geological mapping showed the structure of the reserve area (Block B, C) to be essentially a dip slope on the southwest limb on an asymmetric syncline. Minor kinks in the dip slope replace previously interpreted major folds separating blocks B and C. This would be encouraging if it wasn't for the fact that the Grizzly seam, the best coal seam in the host Gething Formation, averages only 1.5m and is restricted in areal extent.

To the south on the ONION LAKE property (80) CROWS NEST RESOURCES LTD. did a seismic survey to test overburden thickness and then completed one diamond drill hole in the Gates Formation.

LOSSAN EXPLORATION LTD. (72), in a very small program, did hand trenching on licenses previously optioned to Gulf Canada Resources Ltd.

TABLE 7

1985 DEVELOPMENT & PRODUCTION DRILLING AT THE QUINTETTE MINE

McCONKEY PIT

Subpit

Deputy	3 ddh (374m); 88 rdh (7628m)
Marmot	4 ddh (600m); 96 rdh (9756m)
Mesa Late	5 ddh (526m); 51 rdh (4895m)
Mesa Middle	3 ddh (321m); 63 rdh (6109m)
Mesa Early	1 ddh (24m); 1 rdh (40m)
Marmot Extension (below Mesa fault)	2 ddh (494m); 46 rdh (11,437m)

WOLVERINE PIT

Wolverine North	3 ddh (279m); 17 rdh (1543m)
Wolverine South	5 ddh (1027m); 23 rdh (2941m)

DEVELOPMENTS/PRODUCERS

As of November 2, 1985, 4.2 million tonnes of metallurgical coal and 0.6 million tonnes thermal coal were produced at the QUINTETTE MINE (76). Development and production drilling statistics are presented in Table 7. They include 26 diamond drill holes totalling 3646m and 385 rotary drill holes totalling 44349m. In terms of total waste and coal mined, 70 to 75 percent originated from the McCONKEY site and the remainder from WOLVERINE (FRAME) PIT. Production from Wolverine is increasing relative to McConkey though the scale is uncertain given adjustments to reserve figures for Wolverine. At McConkey, 4 of 5 subpits are now developed (Mesa Early is the exception). There is a considerable effort directed in proving the reserves below the Mesa fault in the MARMOT EXTENSION area. Up to 20 million tonnes may be available in a complexly folded and faulted structure.

The areas at or immediate to the mine site where Quintette might satisfy long term production needs include WOLVERINE, MARMOT EXTENSION, SHIKANO, and TRANSFER. The TRANSFER area which is on the mountain between the McConkey pit and the Babcock deposit is the least known geologically and has potential for holding 3/4 of the reserves of Shikano. It is a good candidate for an exploration program involving drilling in 1986. Exploration and development drilling at MARMOT EXTENSION is ongoing and will no doubt continue into 1986.

TECK CORPORATION'S BULLMOOSE MINE (75) will produce 2.05 million tonnes metallurgical coal in their contract year (April 1985 to April 1986). In addition 120,000 tonnes thermal coal were sold on the spot market in the calendar year. Five seams (A to E) were mined with about 50 percent of production coming from the thick and areally extensive B seam.

SOUTHEAST DISTRICT

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INTRODUCTION

Mineral exploration in the district maintained the level of the previous year. Ten Notice of Work on a Mineral Claim forms were filed, up one from 1984. None of these represents a major program by provincial standards.

The level of coal exploration decreased slightly in 1985, with total drilling for the year expected to be about 30km, compared with approximately 37km in 1984. As was the case in 1984, only producing companies were engaged in exploration, and, with a few minor exceptions, all coal exploration activity was concentrated near or within current mine areas. Much of this activity qualified as development drilling. All southeast coal exploration activities are summarized in Table 8, highlights of which are discussed below.

COAL EXPLORATION

FORDING COAL drilled a total of 64 rotary holes, for a combined length of 9418m, on various parts of their holdings. Work in the mine area (81) included rotary development drilling and trenching in the GREENHILLS area, west of the Fording River; rotary drilling and trenching in the KILMARNOCK VALLEY, south of the Eagle Mountain development; and rotary drilling and mapping on CASTLE MOUNTAIN, south of Kilmarnock Creek. A small grass-roots drilling program at ALDRIDGE CREEK (82) was also carried out.

WESTAR MINING conducted two rotary development drilling programs totalling approximately 4430m in 51 holes in the BALMER MINE area (83). In HARMER RIDGE surface mine area work was focussed on the planned Adit 29-East pit, while on adjacent NATAL RIDGE, work was carried out in the planned A-seam pit area. A-seam was also sampled from a test pit developed in 1984. At the GREENHILLS MINE area (84), two rotary drilling programs totalling 4480m in 27 holes were carried out on the mine property itself, and a small drilling program of 293m in 2 holes was carried out on the BURNT RIDGE EXTENSION property to the east.

CROWS NEST RESOURCES concentrated their activities in the planned LINE CREEK EXTENSION pit, adjacent to and north of Line Creek Mine (85). Work here consisted of a large rotary development drilling program of 3638m in 31 holes and geological mapping. Crows Nest were also active on three of their other properties, including BURNT RIDGE EXTENSION (84) where the only diamond drill-hole in the southeast this year was drilled.

TABLE 8
COAL EXPLORATION ACTIVITY, SOUTHEAST DISTRICT, 1985 SOUTHEAST DISTRICT

COMPANY	PROPERTY NUMBER	PROPERTY/AREA	ACTIVITY	COMMENTS
Fording	81	Castle Mountain	Rotary drilling, geological mapping	10 holes; 1051m.
Fording	81	Kilmarnock Valley	Rotary drilling, trenching	15 holes; 1603m; future Kilmarnock dragline pit. Geotechnical.
Fording		Mt. Turnbull (west face)	Rotary drilling	5 holes; 849m.
Fording	81	Greenhills (Swift Pit)	Rotary drilling	15 holes; 2527m; development drilling.
Fording		Lane Mountain	Rotary drilling	19 holes; 755m, development drilling.
Fording	82	Aldridge Creek	Rotary drilling, geological mapping	2 holes; 853m.
Kootar	83	Natal Ridge (A-seam)	Rotary drilling, bulk sampling	38 holes; 5207m; development drilling; 7500 tonne sample from 1984 test pit.
Kootar	83	Harmer East	Adit	One
Kootar	83	Harmer Ridge (Adit 29 East)	Rotary drilling, adit	13 holes; 1225m; development drilling; 80% complete at time of writing; one adit.
Kootar	84	Greenhills Cataract Creek (N. dump)	Rotary drilling	13 holes; 2814m.
Kootar	84	Greenhills (west side)	Rotary drilling	14 holes; 1665m.
Kootar	84	Burnt Ridge Extension	Rotary drilling	2 holes; 295m, conclusion of 1984 project.
Crows Nest Resources	85	Line Creek Extension	Rotary drilling, geological mapping	51 holes; 5636m; development drilling.
Crows Nest Resources	85	Burnt Ridge Extension	Diamond drilling	1 hole; 547m.
Crows Nest Resources		Bare Mountain	Geological mapping and sampling	
Crows Nest Resources		Lillyburt (Flathead townsite)	Rotary drilling	1 hole; 95m.
Byron Creek Collieries	86	Coal Mountain	Rotary drilling	46 holes; 7126m; 80% classed as development drilling.

BYRON CREEK COLLIERIES' mine-site on COAL MOUNTAIN (86) was again the site of a substantial rotary drilling program. A total of 7128m in 46 holes was drilled, most of which qualified as development drilling.

DEVELOPMENTS

FORDING developed and began production in the new SWIFT PIT on the Greenhills portion of their mine property (81). This truck/shovel pit was developed to meet demand for Fording's high-volatile product. Approximately 3 million tonnes of coal, in seams from the uppermost portion of the section, has been outlined.

WESTAR began development work and prestripping related to mining of A-seam on NATAL RIDGE (83), adjacent to the old Erickson strip mine. This medium to high-volatile upper-section seam will be evaluated for its marketability during the early stages of production. Drilling to date has outlined approximately 10 million tonnes, and production could start as early as March, 1986.

CROWS NEST RESOURCES constructed a new haul road from Line Creek Mine into the planned LINE CREEK EXTENSION pit area (85). Decision to develop a new pit, which contains the bulk of its reserves in lower-section seams, will depend on establishment of markets for the increased production capacity.

PRODUCERS

The southeast coal producers continue to work below capacity as they suffer the consequences of soft markets for metallurgical and thermal coal. The failure of the Japanese steel industry to import contracted volumes of metallurgical coal has been particularly harmful. One or more shut-downs per year, each lasting from two to six weeks, are now a common occurrence at most of the area's mines. The latest round of staff cut-backs took place this fall at both of Westar's mines.

The closure of WESTAR's PANEL 6 underground hydraulic mine (83) early in the year was basically a cost-cutting measure. When the nearby BALMER NORTH underground mine closes early in 1986 there will be no underground coal mining in the southeast.

Construction of a new coal preparation plant by BYRON CREEK COLLIERIES (86) is underway, along with upgrading of the old plant. This work will allow the mine to handle a higher-ash raw feed than at present, and to easily increase production in the future.

Southeast producers established export markets for so-called weak coking coal this year. This product is intermediate between thermal and metallurgical coal in terms of its specified ash content and coking properties, and is used as a component in blends for coke making.

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INTRODUCTION

There has been a 31 percent decrease in the "Notice of Work" forms filed in the Nelson office (Table 9). However, with some new and several major projects underway the level of exploration expenditures is close to 1984. The largest project is NORTHAIR MINES LTD's option with BP MINERALS and RIO ALGOM on the AYLWIN CREEK (87) project. To date an adit has advanced 521m with plans for a further 546m to be completed. This will be followed by 3049m of underground diamond drilling. By spending $2.6 million Northair earns a 50 percent interest.

A bonanza type gold find has been made by prospector ALEX STREICHUCK on HAILSTORM MOUNTAIN (88), four kilometres east of Tillicum Mountain. The geology is very similar to the ESPERAZNA/LA TEKO option. Near the city of Nelson LACANA MINING CORPORATION have drilled 15 holes (1326m) on the KENA CLAIMS (89) and have been successful in finding an auriferous pyrite breccia within Rossland volcanics. At COCKLE CREEK (90) north of Duncan Lake NEWMONT EXPLORATION/SIBALD RESOURCES LTD. have drilled 13 holes (794m) on a tungsten prospect which is believed to be stratiform. In the Greenwood area SKYLARK RESOURCES and VISCOUNT RESOURCES LTD. continue to drill on the "O.B." CLAIMS (91) on a new silver gold vein which has been trenched for over 328m.

EXPLORATION

Minerals

In the Grand Forks area KETTLE RIVER RESOURCES/NORANDA/CANBEC joint venture have drilled 456m in the MARSHALL LAKE (92) area. On the CANBEC option 305m of trenching has been done and a new magnetite-pyrite zone has been found. In the BROOKLYN MINE area 183m of diamond drilling has been done. A few kilometres south of this area CONSOLIDATED BOUNDARY EXPLORATION and GRAND FORKS MINING have drilled 1982m on the PATHFINDER, CROWN and GOLDEN CROWN CLAIMS (93). The latter has had some gold intersections and a further 600m of diamond drilling is planned on this claim and the "HEK" CLAIM.

In the Nelson area RYAN EXPLORATION CO. has worked on four properties. Five rotary holes were drilled on the "STAR" CLAIM (94) group on Eagle Creek. The target is an auriferous pyrite zone in Nelson Plutonic rocks which was located by an I.P. survey. Soil geochemical surveys were carried on the "RON" (95) group of claims located near "Forty-nine Mile Creek" west of Nelson, and at the "STEWART" (96) claim group four miles west of Ymir. Percussion drilling was done at the ARLINGTON MINE (97).

TABLE 9

LEVEL OF ACTIVITY IN WEST KOOTENAY DISTRICT, 1985

(derived from permit to work forms)

	1984 (Nov. 1)	1985 (Nov. 1)	Increase/Decrease
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
TOTAL	222	154	-31%

TABLE 10
EXPLORATION AND DEVELOPMENT IN WEST KOOTENAY DISTRICT, 1985

Note: property numbers are keyed to Figure 5

PROJECT NUMBER	PROPERTY NAME OWNER/OPERATOR	MINING DIVISION	LOCATION LAT.	LONG.	NTS	COMMODITY	DEPOSIT TYPE IF KNOWN	WORK DONE/REMARKS
1	Arlington Silver (80 Mineralized Veins) Northern Mineral Ltd.	Slocan				Ag-Pb-Zn	Epithermal	Diamond drilling, trenching, geochemical sampling, geological mapping.
2	Bayonne Mtn. Cirque Resources	Slocan				Ag-Pb	Vein, skarn	Diamond drilling, geological mapping and other work.
3	Beaverdell Silver Mines Ltd. Beaverdell Resources Ltd. Mining Corp.	Greenwood				Au	Epithermal-breccia	17 km, 11 km.
4	Bluebird Claims (Triple Penguin Ltd.) Bluebird Mines	Slocan				Au	Epithermal	13 km, 13 km. 200 metres drifting, 24 metres diamond drilling.
5	Bonanza Claims (Bonanza Resources Ltd.)	Greenwood				Ag-Pb-Zn	Vein	Diamond drilling, 1,000 metres, geological mapping.
6	Bonanza Creek Placer Project Bonanza	Greenwood				Au	Placer	Gold recovery, other mining activities.
7	Bonnington Silver Mines Ltd. (Bonnington Silver Corp.) Bonnington Silver Mines	Nelson				Ag-Pb-Zn	Vein	Diamond drilling.
8	Bow Claim Bow Resources	Nelson				Au	Epithermal	Diamond drilling.
9	Bralorne Claims Bralorne Resources	Nelson				Au		Geochemistry.
10	Bralorne Claims Bralorne Resources	Nelson				Au		Geochemistry.
11	Brandon Claims	Nelson				Au		Geochemistry, drilling.

West of Nelson SNOW-WATER RESOURCES have completed 1646m of percussion drilling on Snow-Water Creek near the WHITEWATER MINE (98). Closer to Nelson ALGOMA INDUSTRIES AND RESOURCES LTD. is rehabilitating the adit at the KENVILLE GOLD MINE (99), and BP EXPLORATION CANADA LTD. has completed 1646m of diamond drilling at the WISCONSIN MINE (100).

In the Slocan area NORANDA EXPLORATION CO. LTD. has drilled two holes at the "L.H." MINE (101) for a total of 305m. Also in the Slocan area KILO GOLD MINES LTD. have rehabilitated the KILO and CAPELLA (102) adits.

South of Salmo NORANDA and FALCONBRIDGE LTD. (103) have staked large claim units on the Rossland volcanics. Extensive geochemistry and geophysics has been done, the target being massive sulphides within the volcanics.

In the Cranbrook area a deep hole has been drilled on the BAR claim by CRANBROOK JOINT VENTURE, LARAMIDE RESOURCES LTD., SKYLARK RESOURCES LTD., and NORANDA EXPLORATION CO. LTD. (104). The target being the "Sullivan Ore Horizon". The hole ended at 1550m.

DEVELOPMENTS

NORTHAIR MINES LTD. (87) are driving a 1067m tunnel on their AYLWIN CREEK property, to be followed by 3049m of underground diamond drilling. The exploration target is a diatreme which has a ring dyke breccia complex of approximately 300m length and is 30m in maximum width. This is called the "West Zone". Reserves to date are 1.81 million tonnes grading 2.93 grams of gold per tonne, 0.66 percent copper, and 9.3 grams of silver per tonne. This includes a high grade core of approximately 0.56 million tonnes grading 6.25 grams of gold per tonne, 0.94 percent copper and 13.9 grams of silver per tonne. The object of the present exploration is to find another arcuate zone. The main or "Willa Zone" has reserves of 3.4 million tonnes grading 1.48 grams of gold per tonne, 0.32 percent copper and 4.8 grams of silver per tonne. If brought to production this property could be the largest gold mine in British Columbia. Age dating of the volcanic rocks is in progress.

Present thinking is that these rocks are part of the lower Jurassic Rossland Formation. They were previously mapped as Triassic, or Lower Jurassic, Slocan group. It is considered unlikely that only one diatreme exists. If age dating confirms this interpretation, this target of large low-grade gold deposits in a diatreme environment would be valid not only in this area, but also in the rest of the known Rossland volcanics.

At the DENTONIA MINE (105) 90.7 tonnes of development ore produced 8.57 grams of gold per tonne and 68.57 grams of silver per tonne. A new interpretation of the rake of the ore indicates that the ore zones can be extended.

TABLE 11
ACTIVE METAL MINES IN WEST KOOTENAY DISTRICT, 1985

MINE	COMPANY	LOCATION LAT.	LONG.	NTS	COMMODITY	DEPOSIT TYPE	PRODUCTION AND DEVELOPMENT DATA
Sullivan	Cominco Ltd.	49°42.2'	116°00.8'	82F/9E	Ag/Pb/Zn/Cu/Cd/In	stratiform	10,884 tonnes/day Closed one month to reduce zinc stockpile.
Silverfir	Dickenson Mines Ltd.	49°58.3'	117°35.2'	82F/14W	Ag/Pb/Zn	vein	49.9 tonnes/day also 65m of surface diamond drilling.
Highland Bell	Teck Corporation	49°25.1'	119°03.8'	82E/1E	Ag/Pb/Zn	vein	100 tonnes/day produced 11,558,365 gm Ag.

ARGONEX INTERNATIONAL LTD. have opened the "AMIGO" MINE (106) at Boundary Falls, and have completed 38m of drifting.

ESPERANZA/LA TEKO RESOURCES LTD. (107) are reported to have produced 62,200 grams of gold from approximately 1996 tonnes of ore. Four levels on the HEINO vein have been completed for a total of approximately 104m and 27.4m of raises. Bonanza type gold was encountered several times.

MIKADO RESOURCES LTD. and TURNER ENERGY & RESOURCES LTD. have been very active on their "WAGNER" (108) project at the headwaters of Healy Creek in the Duncan River area. The "SHEEP CREEK" adit located below the Wagner Adit has been opened as well as the JEWEL adit. Drifting and crosscutting in the lower WAGNER adit has continued, and approximately 73 tonnes of drift muck has been sent to the Cominco Smelter in Trail. The ABBOT zone massive sulphides have been described as "Kootenay Arc" type replacement mineralization. This zone of silver-lead-zinc-gold mineralization is 20m long, 11m wide, and has been traced to a depth of 28m giving reserves of 18,321 tonnes. Four kilometres of road will be needed to reach the deposit from the present WAGNER MINE road.

At the REFERENDUM MINE (109) near Nelson, surface work has produced 184 tonnes grading 6.8 grams of gold per tonne. A new vein has been found, with a grade of 3.4 grams of gold per tonne.

In the Lardeau area, near Trout Lake, FRANKLIN RESOURCES produced 190 tonnes grading 2.4 grams of gold per tonne, 531.4 grams of silver tonne, 3.8 percent lead, and 2.4 percent zinc from the YUILL TOWSER MINE (110) in January 1985. Two hundred and twenty tonnes of material was also shipped from the dump since the option agreement includes the right to purchase surface mill feed ore that was stockpiled during mining operations at the former SILVER CUP MINE.

Diamond drilling by Mr. D. Pengelly has resulted in finding the possible extension of the HINCKLEY MINE (111) near Sandon.

The STANDARD MINE (112) of SILVER RIDGE RESOURCES INC. near Silverton completed 107m of drifting and 24m of drift rehabilitation.

PRODUCERS

Normal production at 10,884 tonnes per day of Ag, Pb, Zn, Cd ore continued from COMINCO'S SULLIVAN MINE except for a one month shutdown to reduce the zinc stockpile. DICKENSON'S SILVANA MINE continued to produce Ag, Pb, Zn ore from the Sandon area at a rate of 99.8 tonnes per day. Eight hundred and thirty-six metres of surface diamond drilling was also completed (Table 11).

At TECK CORPORATION'S HIGHLAND BELL MINE production has been at the rate of 100 tonnes per day with production for their fiscal year ending in September being 37,282 tonnes that yielded 10,462,849 grams of silver.

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INTRODUCTION

Although exploration activity for metallic minerals is down from the past few years, gold producing geological environments have been uncovered that might further encourage explorationists. The two areas that received the most concentrated exploration activity have been the Hedley and the Gold Bridge camps.

EXPLORATION

Minerals

Recent exploration in the South Central District has again focussed on the importance of Lower Jurassic intrusions and related precious-base metal mineralization. Large plutons such as the Thuya Batholith have long been known to have associated mineralization, but now the importance of smaller quartz-diorite plutons of this age as hosts for gold, tellurides and bismuth bearing quartz veins is also being realized. Specifically, MineQuest's recently discovered auriferous quartz veins on their BONAPARTE (150) claims are believed to be related to a Jurassic intrusion into metasediments of late Paleozoic or Triassic age.

Gold occurring with chalcedonic, vuggy quartz and hosted in a north south shear zone in Jurassic basalt and andesite on Huntington Resources BRETT claims (151) west of Vernon, is believed to be associated with a leucocratic intrusive body of Jurassic age. Marginal gold showings in Triassic volcanics in the Kamloops area similarily may be of Jurassic age. Properties showing anomalous or better gold values of this nature would be the BRUSSEL (159), SPROUT (160), PRECISELY (158), MOW (161) (a riebeckite altered quartz-eye rhyolite flow or dome), INDY (162), GOLD BUG (163) (Jamieson Creek), and GOLD NOSE (164) (Watching Creek). A gold prospect in a shear zone hosted in distal volcanics mapped as late Paleozoic near the CHAPUT MINE (153) at Lumby is possibly also of Jurassic age.

I.M. Watson has explored for gold for VANCO EXPLORATION (133, 134, 135, and 136) along the contacts of diorite stocks intruded into Upper Triassic sedimentary and volcanic rocks of the Nicola Group. Although the diorite and volcanics in the field appear to be lithologically consanguineous, the possibility that the diorite stocks in the Aspen Grove area are of younger Jurassic age should be considered.

TABLE 12
EXPLORATION AND DEVELOPMENT IN SOUTH CENTRAL DISTRICT, 1985

*note - prospect numbers are keyed to Figure 5
prospect numbers 47 to 53 on map are not in this table

PROSPECT NUMBER	PROPERTY NAME OWNER/OPERATOR	MINING DIVISION	LOCATION LAT.	LOCATION LONG.	LOCATION NTS	COMMODITY	DEPOSIT TYPE IF KNOWN	WORK DONE/REMARKS
113	Bralorne (Mascot Gold)	Lillooet	50°48'	122°50'	92J/15W	Au	vein	Geophysics/geochem. 1985 funds diverted to Hedley.
114	Congress (Levon Resources)	Lillooet	50°54'	122°47'	92J/15W	Au/Ag	vein & replacement	New Lou zone reported to be 460 x 7.4m 12.7gm Au, 1gm Ag, 1.7% Sb; DD currently - UG on Howard, Congress and possibly Lou zone during winter months.
115	BRX (Levon Resources)	Lillooet	50°50'	122°50'	92J/15W	Au/Ag	vein & replacement	Grab sample 19,000+/- Au, 13,700 grams Ag reported in new zone.
116	Gberrock (Levon Resources)	Lillooet	50°48'	122°42'	92J/15E	Au/Ag	vein & replacement	Drilled from 3 sites.
117	Oro (Levon Resources)	Lillooet	50°47'	122°53'	92J/15W	Au/Ag	vein & replacement	10 trenches done after geochem.
118	Pine (Levon Resources)	Lillooet	50°48'	122°45'	92J/15W	Au/Ag	vein & replacement	Drilled from 15 sites.
119	Silverside (Levon Resources)	Lillooet	50°50'	122°35'	92J/15E	Au/Ag	vein & replacement	Geochem and geophysics.
120	Truax Gold (Avino/Levon Resources)	Lillooet	50°45'	122°49'	92J/15W	Au/Ag	vein & replacement	10 trenches.
121	Pacific Eastern (JTM Enterprises/Normine Res.)	Lillooet	50°45'	122°45'	92J/10,15	Au/Ag	vein & replacement	80m drilled after geochem.
122	Golden Sidewalk (Marstar Resources)	Lillooet	50°55'	122°45'	92J/15E&W	Au/Ag	vein & replacement	Geochem/drilling 7 grams Au reported.
123	Reliance (Manika Mining)	Lillooet	50°53'	122°47'	92J/15	Au/Ag	vein & replacement	Current diamond drilling, 24m of favourable 'greenstone', favourable host rock.

PROSPECT NUMBER	PROPERTY NAME Owner/OPERATOR	MINING DIVISION	LOCATION LAT.	LONG.	NTS	COMMODITY	DEPOSIT TYPE IF KNOWN	WORK DONE/REMARKS
124	Ranger (Levon Resources)	Lillooet	50°51'	122°45'	92J/15W	Au/Ag	vein & replacement	Grab sample 16.4 grams Au, 218 grams Ag.
125	Tyax (X-Calibre)	Lillooet	50°56'	122°48'	92J/15W	Au/Ag	vein & replacement	Soils, trenching, currently percussion drilling.
126	Pilot (X-Calibre)	Lillooet	50°53'	122°54'	92J/15W	Au/Ag	vein & replacement	Soils, trenching, drilling.
127	Materico (X-Calibre)	Lillooet	50°48'	122°46'	92J/15W	Au/Ag	vein & replacement	Reported 1.6m, 10 grams Au.
128	Truck, Paymaster (X-Calibre, Hudson Bay)	Lillooet	50°43'	122°56'	92J/10	Au/Ag	vein & replacement	EM, silt, soils.
129	Bralorne, Amazon Pete, Carpenter Lake	Lillooet	50°51'	122°52'	92J/15W	Au/Ag	vein & replacement	$150,000 work carried out with no 6-7 filed.
150	Nickel Plate (Mascot Gold)	Osoyoos	49°22'	120°02'	92H/8E	Au	vein & replacement	3.85 at 5 grams Au, over 300 drill sites, production decision soon.
151	Dusty Mac (Esso)	Osoyoos	49°20'	119°32'	82E/5E	Au/Ag	volcanogenic	19 holes, no results announced.
152	Pine Knot (Banbury Mines/Noranda)	Osoyoos/ Similkameen	49°22'	120°27'	92I/16,92P/1	Au	vein	Mag, EM, soil, possibly drilling
153	Thor (Yanco Exploration)	Nicola/ Similkameen	49°49'	120°34'	92H/15E	Au	syngenetic? in argillite	Trenching in Triassic Nicola for Au. Mag, IP, soils.
154	Bloo (Yanco Exploration)	Nicola	49°53'	120°35'	92H/15E	Au	syngenetic? in argillite	Trenching in Triassic Nicola for Au. Mag, IP, soils. 10 trenches.
155	Mickey Finn (Yanco Exploration)	Nicola	49°54'	120°35'	92H/15E	Au	syngenetic? in argillite	Trenching in Triassic Nicola for Au. Mag, IP, soils, 6 trenches.
156	Blax (Yanco Exploration)	Nicola	49°54'	120°37'	92H/15E	Au	syngenetic? in argillite	Trenching in Triassic Nicola for Au. Mag, IP, soils, 6 trenches.
157	Yellow, Billy	Nicola	50°12'	121°56'	92I/2W	Cu/Fe	skarn	One 500m hole drilled.

PROSPECT NUMBER	PROPERTY NAME OWNER/OPERATOR	MINING DIVISION	LOCATION LAT.	LOCATION LONG.	NTS	COMMODITY	DEPOSIT TYPE IF KNOWN	WORK DONE/REMARKS
138	Cindy (BP Minerals)	Nicola/ Kamloops	50°24'	120°22'	92I/8W	Au/Mo	vein near surface disc. at depth	Au and Mo associated with Q/ fluorite at intersection of shear zones. Redbird, one 2-post claim sits in centre of area.
139	Tarbolo, Silver (SMD Mining/BP)	Kamloops	51°55'	120°25'	92P/9W	Au/Ag/Cu/Pb/Zn	unknown	IP, Mag, EM, soil, Rx
140	Silica (Rea Gold/BP)	Kamloops	50°40'	121°20'	92I/11W	Cu/Au	porphyry?	Mag-Em, Rx, Geol. - property returned to Rea recently. Rea may have $150,000 flow through before year end.
141	Moly, Add (BP Minerals)	Kamloops	50°38'	121°22'	92I/11W	Cu/Au	porphyry?	IP, Rx, Geol., drilled - results believed to be negative.
142	Silver Lichen (Kitilick Gold/Noranda)	Kamloops	51°05'	119°23'	82M/3W	Cu/Pb/Zn/Au/Ag	volcanogenic	Geophysics, geochem, diamond drilling.
143	Mosquito King (Kitilick Gold/Noranda	Kamloops	51°06	119°30'	82M/4E	Cu/Pb/Zn/Au/Ag	volcanogenic	Geophysics, geochem, diamond drilling.
144	Pisima-O'Brien (Noranda)	Kamloops	51°06'	119°29'	82M/3W,3E	Cu/Pb/Zn/Au/Ag	volcanogenic	Mag, EM, trenches.
145	Lucky Coon, etc. (Adams Silver)	Kamloops	51°00'	119°34'	82M/4E	Cu/Pb/Zn/Au/Ag	stratiform	IP, VLF, drilling, trenching.
146	Her, SC, Anne (Corporation Falconbridge Copper)	Kamloops	51°15'	120°00'	82M/4W,5W 92P/13,E	Cu/Pb/Zn/Au/Ag	volcanogenic	VLF, Mag, Max/Min.
147	HN/AH (Hilton/Corporation Falconbridge Copper)	Kamloops	51°10'	119°50'	82M/4W	Cu/Pb/Zn/Au/Ag	volcanogenic	Drilling continues from 10 sites (Rea Gold option).
148	CC, Chu Chua (vestor/Corporation Falconbridge Copper)	Kamloops	51°22'	120°02'	92P/8E	Cu/Au	volcanogenic	Following summer program, new program announced.
149	Mount Armour (Corporation Falconbridge Copper).	Kamloops	51°10'	120°07'	92P/1	Cu/Pb/Zn/Au/Ag	volcanogenic	Continuing program to find massive sulphides.

PROSPECT NUMBER	PROPERTY NAME OWNER/OPERATOR	MINING DISTRICT	LOCATION LAT.	 LONG.	 NTS	COMMODITY	DEPOSIT TYPE IF KNOWN	 MORE INFORMATION
109	Marquette (Marquette)	Hastings	51°40'	121°25'	92H/8, 9W/1	Au	epithermal vein	Western, westernmost, and largest of several northwest-trending Au-bearing structures in property area; drilling planned, currently in survey.
110	Grant (Huntington Resources)	Hedley	49°18'	119°58'	82L/4	Au	vein	11 vein, 15000 gpd Au reported; property is west of Hedley, east of Eastgate zone.
111	Nickel Plate (no identification)	Hedley	49°30'	119°37'	82L/12	Au	stratiform	Reserves have reached sufficient encouragement to continue a limited program.
112	Lucky Nine (Independence Mining)	Hedley	49°16'	119°40'	82L/5W	Au/Ag	?	Au is reported in a lower zone in argillites, away from the ore zone.
113	Mine (T & R Resource/Mascot Gold)	Revelstoke	51°0'	118°56'	82M/16E,15W	Cu	stratiform	Drilling and trenching carried out during 1985.
114	J.A.J. (Fleet Exploration)	Revelstoke	51°11'	118°16'	82M/5E	Au/Ag/Pb/Zn/Cu	epigenetic	3.4 m at 5 gpt Au, 30 gm Ag with Pb, Zn and Cu values. Property is in folding pattern.
115	Summit Gold Mines (D & S Tener)	Hedley	49°36'	119°34'	82L/12W	Au/Ag	? vein ?	Work done unknown - this is just what is in Hedley area file.
116	Spring Gold (Hudson Bay Expl.)	Hedley New Westminster	49°31'	119°37'	82L/5E	Au		Map only, 1 sample drill.
117	Prospect (M. Dimmell/Minequest)	Hedley	49°27'	119°50'	92H/1	Au	replacement	Minequest have Au in mineralized zone and argillite in a fault, extending zone of alteration. The mineralization is probably tertiary.
118	Bronze (M. Morrison)	Hedley	49°43'	120°42'	92H/12E	Au	replacement	
119	Quiet (Newmont)	Hedley	49°43'	120°43'	92H/12E	Au	vein	
120	Mac	Hedley	49°42'	120°43'	92H/12E	Au	replacement	

MINFILE NUMBER	PROPERTY NAME (AREA/OPERATOR)	MINING DIVISION	LOCATION LAT.	LOCATION LONG.	LOCATION NTS	COMMODITY	DEPOSIT TYPE (1 FROM	ROCK (LITHOFORMA
104	[illegible]	Kamloops	50°43'	120°53'	92I/10W	Au	vein	
183	[illegible]	Kamloops	50°54'	120°20'	92I/10W	Au	vein	
184	[illegible]	Kamloops	50°56'	120°26'	92I/10W	Au	[illegible]	
185	[illegible]	Kamloops	50°23'	120°22'	92I/10W	Au	vein	

The CHU CHUA (148) massive sulphide copper-cobalt deposit has received attention by Corporation Falconbridge Copper and it is reported that their interest in the property has been maintained by the discovery of an extensive rhyolite flow interbedded with the basalts, and of sulphide clasts in volcanics. Corporation Falconbridge are also drilling to the northeast of the discovery zone on the Rea Gold-Hilton AR-HN claims (147), again a massive sulphide deposit containing precious metals. In addition to Corporation Falconbridge Copper's drilling, Rea Gold also plan diamond drilling on the AR-HN claims before the end of 1985. Rea Gold also plan a drill program before the end of 1985 on the MOLY, ADD claims (141) south of Cache Creek. West of the Trans Canada Highway on the Moly, Add claims, iron formation is present with 0.5 percent copper while east of the highway there is a massive sulphide showing.

Gold and silver have been reported from a number of properties in the Gold Bridge area. Levon Resources uncovered a new find, the Lou Zone on the CONGRESS property (114). A strong shear traverses altered andesite and intercalated chert, cherty argillite and graphitic argillite of the Triassic Bridge River Group and epithermal to mesothermal pyrite, arsenopyrite, stibnite, realgar, quartz and ankerite occur as vein and replacement type deposits in the shear zone. An altered feldspar porphyry dyke usually accompanies the zones of better mineralization; later, less altered feldspar porphyry dykes appear to cut the mineralized shears. Exposures on the TYAX claims (125) of X-Calibre Resources north of the Congress property indicate that mineralization is hosted in a possible melange. Levon Resources are active on several other properties which have yielded spectacular grab sample assays; similarily, X-Calibre Resources continue to be active on a number of other properties also with interesting precious metal assay results. The BRALORNE/PIONEER MINE (113) of Mascot Gold was not as extensively explored in 1985 as in 1984. Drill indicated reserves of 890,000 tonnes grading 10.2 grams of gold per tonne have been previously released for this property.

In the Hedley area Mascot Gold are in the feasibility decision stage for the NICKEL PLATE property (130). Open pittable reserves are 3.66 million tonnes grading 5.14 grams of gold per tonne. Noranda have optioned Banbury Mines, PINEKNOT claim (132) looking for more gold and are to drill a 300 to 400 metre test hole from surface. Placer Development have also been very active on a number of properties in the Hedley area.

Notices of Work

Metallic mineral exploration based on 6-7 forms is down 16 percent from 1984 and 26 percent from 1983. Placer activity slumped during 1984 but appears to be on par this year with the 1983 level.

Despite the decrease in exploration activity during 1985, the outlook for 1986 looks brighter, based on the type and geological setting of some of the new discoveries, and with the intended follow-up programs.

TABLE 13
ACTIVE METAL MINES IN SOUTH CENTRAL DISTRICT, 1985

MINE	COMPANY	LOCATION LAT.	LOCATION LONG.	NTS	COMMODITY	DEPOSIT TYPE	PRODUCTION AND DEVELOPMENT DATA
Afton	Teck Corporation	50°39.5	120°30'	92I/9,10	Cu/Au	porphyry	Reserves probably 11.3 mt with 0.8% Cu.
Highmont	Teck Corporation	50°26'	121°00'	92I/6E	Cu/Mo	porphyry	Closed indefinitely. 100 mt .26% Cu, .027% Mo.
Cominco Valley	Cominco	50°29'	121°05'	92I/11E	Cu	porphyry	700 mt .475% Cu; heap leach tried on oxides.
Lornex*	Rio Tinto	50°28'	121°04'	92I/6E	Cu/Mo	porphyry	100 mt .4% Cu, .02% Mo.
Brenda*	Noranda	49°48'	119°59'	82E/13W	Mo/Cu	porphyry	33 mt .17% Cu, .034% Mo.
Similkameen	Newmont	49°20'	120°52.5'	92H/7E	Cu	porphyry	100 mt plus .38% Cu.
Goldstream	Noranda	51°37'	118°07.5'	82M/9E	Cu/Pb/Zn/Ag	volcano-genic	3.5 mt 3.51% Cu, 2.5% Zn, 17 g/T Ag Closed indefinitely.
Oankoe		49°03'	119°42'	82E/4E	Ag		Milled 2500 tons of La Teko/Tillicum Mtn. ore; conc. shipped to Trail.

* reserves vary in relation to water tax relief

PRODUCERS

Cominco's Valley Copper are averaging 25,500 metric tons per day in the Bethlehem mill; heap leach testing is being carried out on the oxide ores at the site. Lornex continues normal operation while Highmont remains closed. Brenda Mine was reopened during 1985 but Goldstream Mine north of Revelstoke remains closed. Afton Mines near Kamloops has reserves left in the pit for two years. Plans to mine from underground to the southwest of the Afton pit have been abandoned due to a continuing low copper price. If the Pothook zone to the southeast of the main pit is mined, the life of the mine may be extended another six to eight months. Mining of the Ajax property owned by Cominco and located further to the southeast of the Pothook zone may be another way to extend the life of the Afton Mine. The Ajax property, however, is of lower grade copper than the Afton Mine and mining access to the property may be further complicated by surface rights.

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INTRODUCTION

Exploration activity in the Southwest District during 1985 as measured by the number of projects reported, has shown an increase of approximately 15 percent over 1984. However, 76 percent of the total activity took place on Vancouver Island and Texada Island, continuing a trend of reduced activity in the mainland portion of the District compared to increased activity on the islands. Furthermore, 33 percent of the Mineral Notices received were from the Victoria Mining Division alone, reflecting accelerated interest in the Sicker volcanic belt northwest of Duncan and an unusually large number of Notices submitted by individual prospectors working between Cowichan Lake and the south tip of Vancouver Island.

The field season of 1985 saw an abnormally long dry period in mid-summer which resulted in unusually long and stringent forest closures. Many large parts of Vancouver Island were closed to all types of industrial activity for much of July and August. As a consequence, many projects, particularly those involving drilling, had to be postponed until September or later. At the time of writing (November) several drilling projects are still continuing with a few more expected to begin before the end of the year.

The focus of interest again has been almost totally on the search for precious metals. Base metal deposits are of interest only if they contain significant levels of gold and/or silver. The main deposit types being investigated in 1985 have included a) volcanogenic polymetallic massive sulphides in the Sicker Group on Vancouver Island, in the Coast Range roof pendants, and near Harrison Lake; b) Au/Ag veins of various types throughout the District; and c) skarns with precious metals on northern Vancouver Island and on Texada Island.

The main success of the 1985 exploration season in the Southwest District are the potentially significant new massive sulphide discoveries in the Sicker volcanic belt made by Aberford Resources on the Lara property near Chemainus and by Goldbrae Developments near Nanaimo Lakes.

EXPLORATION

Table 14 lists a selection of the more significant of the exploration projects known to be underway in the Southwest District in 1985. The following comments will attempt to highlight the major centres of activity and the more significant successes. The map numbers listed in Table 14 and shown in brackets after property names in the following text are keyed to the location map.

TABLE 14
EXPLORATION AND DEVELOPMENT, SOUTHWEST DISTRICT, 1985

*note - prospect numbers are keyed to figure 3

MAP NUMBER	PROPERTY NAME OWNER/OPERATOR	LOCATION	COMMODITIES	REMARKS
163	Lara (Teck-Corona/Aberford Res.)	48°52'N, 123°52'W - 15 km NW of Duncan, Holly Creek area	Au/Ag/Cu/Pb/Zn	Drilling continues on Coronation zone. Reported to date: 270,000 lbs. metres averaging 1.75 grams Au/tonne, 35.4 grams Ag/tonne, 1.49% Zn, 1.44% Cu, 0.36% Pb.
165	Oak, Chip (Esso Res./Triad Green Mines)	48°56'N, 123°55'W - Molycos, Silver and Chipman Creeks	Au/Ag/Cu/Pb/Zn	Geological mapping, ground geophysics, some trenching; drilled 750m.
167	Copper Canyon (Canamera Explorations)	48°52'N, 123°46.5'W - on Chemainus River, west side of Mt. Sicker	Au/Ag/Cu/Pb/Zn	Soil geochemistry, geophysics; drilled total 1044 m in 5 holes.
166	Mt. Sicker (Corporation Falconbridge Copper)	48°53'N, 123°47'W - Mt. Sicker	Au/Ag/Cu/Pb/Zn	Geochemistry; mapping; drilled 4 short holes; more drilling planned.
164	West (Falconbridge Ltd.)	48°51'N, 123°48'W - Mt. Richards, west of Crofton	Au/Ag/Cu/Pb/Zn	Geophysics, geochemistry, plan some drilling late in year.
164	John (Utah Mines Ltd.)	48°55'N, 123°36'W - 3 km west of Chemainus	Au/Ag/Cu/Pb/Zn	Geological mapping; geochemistry; geophysics.
167	Striker (Utah Mines Ltd.)	48°54'N, 124°12'W - north of Cowichan Lake	Au/Ag/Cu/Pb/Zn	Geological mapping; geochemistry; geophysics.
168	Haslam (Imperial Metals Corp.)	49°00'N, 124°01'W - Haslam Creek, 15 km east of Ladysmith	Au/Ag/Cu/Pb/Zn	Geochemistry, geophysics, geological mapping; drilling planned late in year.
161	Nanaimo Lakes (WestMount Resources/ Goldbrae Developments)	49°04'N, 124°28'W - Nanaimo River west of Fourth Lake	Au/Ag/Cu	Geology, geophysics, geochemistry, trenching; drilling; high grade Cu-Ag-Au mineralization reported from trenching and drilling.
170	Tristin (Nexus/Westmin Resources)	49°06'N, 124°59'W - 16 km SE of Port Alberni	Au/Cu/Ag/Zn	Late season program of drilling, geochemistry and geophysics planned.
170	Kitkat (JBL Resources Ltd.)	49°04'N, 124°55'W - Nitinat River, 22 km SE of Port Alberni	Au/Ag/Cu/Pb/Zn	Geophysics; drilling.

MAP NUMBER	PROPERTY NAME OWNER/OPERATOR	LOCATION	COMMODITIES	REMARKS
172	Kirk (Victoria Res. Corp./ Falconbridge Ltd.)	49°03'N, 125°16'W - north of Tsusiat Bay	Au/Ag/Cu/Zn	Geological mapping, geochemistry, drilled total 332m in 7 holes on Lucky vein.
173	Jasper (Falconbridge Ltd.)	48°51'N, 124°55'W - Jasper Creek, 6 km NE of Nitinat Lake	Cu/Zn/Ag	Geophysics, geochemistry, geology, drilled total 187m in 4 holes.
174	Valentine Mtn. (Beau Pre Expl./Falconbridge Ltd.)	48°51'N, 123°51'W - 14 km NW of Sooke	Au/Ag	Trenching, mapping, detailed and bulk sampling.
176	Southfork (Twinfork Mining Ltd.)	49°06'N, 123°39'W - 5 1/2 km SW of	Coal	Drilled total 287m in 28 rotary holes.
177	Lanterman Creek (Canadian Occidental Pet.)	49°04'N, 125°02'W - Ash River area NW of Port Alberni	Coal	Drilled total 1078m in 12 holes.
178	Hamilton Lake (Weldwood of Canada Ltd.)	49°55'N, 125°03,5'W - 6 1/2 km SW of Cumberland	Coal	Drilled total 282m in 3 rotary holes, geophysical logs logged all holes.
179	Joe Rose + Nina (Iron River Resources Ltd.)	49°46'N, 125°21,5'W - Piggot Creek, Oyster River	Ag/Au/Pb/Zn/Cu	Geological mapping, prospecting, sampling, some drilling.
180	Chute Creek (Sulpetro Minerals/Nuspar Resources)	49°52'N, 125°25'W - 17 km SW of Campbell River.	Coal	Mapping, drilling, trenching, bulk sampling.
181	Anal Inlet (Carnegie Resources)	50°00'N, 127°15'W - south side Anal Inlet east of Kyuquot	Au	Mapping, sampled old workings (Fir-Mil), late season drilling.
182	Hitter (Falconbridge Ltd.)	50°07'N, 126°55'W - Artlish River area NW of Zeballos	Au/Fe/Cu	Airborne and ground geophysics; soil geochemistry, trenching, diamond drilling.
183	Nimpkish (WestMar Res/Yorkshire Res)	50°22'N, 126°55'W - Shorey Creek, SE end of Nimpkish Lake	Ag/Pb/Zn/Cu	Sampled old workings, geophysics, drilled 4 holes, failed to extend known reserves.
185	Expo (Utah Mines Ltd.)	50°3'N, 127°48'W - 10 km east of Holberg	Cu/Mo/Au	Drilled total 970m in 6 holes.
186	Dorothy Morton (Sigvet Resources)	50°26,5'N, 125°20,5'W - east side Phillips Arm	Au/Ag	Trenching; 5 drill holes underground totalling 340m.

MAP NUMBER	PROPERTY NAME OWNER/OPERATOR	LOCATION	COMMODITIES	REMARKS
186	Alexandria (Charlemagne Res/Falconbridge Ltd.)	50°30'N; 125°50'W - west side Phillips Arm	Au/Ag	Airborne geophysics; geochemistry; mapping and sampling, underground drilling, 15 holes totalling about 2000m.
187	Holly (Northair Mines)	49°43'N; 124°54'W - SW of Vananda, Texada Island	Au	Mapping; trenching; drilled total of approx. 460m.
187	Volunteer, MZ1, Bolivar (Rhyolite Res/Heritage Pet.)	49°45'N; 124°55'W - west of Vananda, Texada Island	Au/Ag/Cu/Fe	Geophysics; geochemistry; trenching; drilled approx. 12 holes.
188	Chalice (Chalice Mining Inc.)	49°45'N; 124°00'W - north end Sechelt Peninsula, west of Egmont	Au/Ag	Drilling; trenching.
189	Red Tusk (Newmont Exploration)	49°46'N; 123°16'W - 16 km WNW of Squamish	Au/Ag/Cu/Pb/Zn	Drilled 12 holes totalling 653m.
190	Indian River-Furry Creek (Anaconda/Corporation Falconbridge Copper)	49°55'N; 123°07'W - 15 km SE of Squamish	Au/Ag/Cu/Pb/Zn	Geological mapping; late season drilling to total of about 2000m.
191	Agassiz-Beaver, Seneca (Chevron Minerals/International Curator Resources)	49°19'N; 121°56'W - Chehalis River, north of Harrison Mills	Cu/Pb/Zn/Au/Ag	Geophysics; geochemistry; mapping; late season drilling.
192	RN-Hot (Abo Oil/Kerr Addison Mines)	49°20'N; 121°44'W - 4 1/2 km NE of Harrison Hot Springs	Au	Geological mapping; bulk sampling; drilling to total about 850m planned.
193	Auteas (Silver Cloud Mines)	49°26'N; 121°29'W - Silver Creek, SW of Hope	Au/Ag/Cu	Underground and surface drilling to total about 500m.
195	Doctors Point (Rhyolite Res/Heritage Pet.)	49°36'N; 122°00'W - Doctors Point, west side of Harrison Lake	Au/Ag	Drilled approx. 600m in 8 holes.
195	Toll (Diamond Resources Inc.)	49°40'N; 122°03'W - Five Mile Bay, west side of Harrison Lake	Au/Ag	21 percussion holes; IP survey; 4 diamond drill holes.
196	Avalanche (Caliente Resources Ltd.)	50°55'N; 122°54'W - head of Birkenhead River, north of Pemberton.	Au	Geophysics; geochemical surveys; trenching.

Minerals

The main concentration of activity in the District in 1985 has been in the Sicker belt of Paleozoic volcanic rocks on Vancouver Island, particularly in the CHEMAINUS RIVER area northwest of Duncan (166). Interest in the area was given additional stimulus in January when ABERFORD RESOURCES announced the discovery of a new massive sulphide zone in felsic volcanics on the LARA property west of Chemainus. In August, after completing 27 more drill holes on the "Coronation Zone", the company announced that mineralization averaging 1.75 grams of gold per tonne, 38.4 grams of silver per tonne, 1.98 percent zinc, 0.44 percent copper, and 0.36 percent lead had been traced over a strike distance of about 400 metres, to an average depth of 107 metres, and an average width of 6.3 metres. The announcement included an intersection of 3.7 metres grading 7.3 grams of gold per tonne, 295 grams of silver per tonne, 9.22 percent zinc, 1.16 percent copper, and 2.53 percent lead in a drill hole positioned 503 metres east of the Coronation Zone along the same geophysical trend. By mid-October 46 holes had been drilled in the 1985 program and drilling was expected to continue until late in the year.

A second significant discovery in the Sicker belt appears to have been made by GOLDBRAE DEVELOPMENTS, in a joint venture with WESTMOUNT RESOURCES and NEXUS RESOURCES, at an old copper property in the Nanaimo River area west of NANAIMO LAKES (169). Extensive surface surveys and trenching early in the year had generated some excitement but drilling did not start until September, after a two month forest closure. Press releases in October reported some very impressive drill and trench results including a trench assay of 9.64 percent copper. 0.69 grams of gold per tonne, 157.7 grams of silver per tonne over 1.8 metres and a drill intersection of 3.72 percent copper, 0.08 grams of gold per tonne, 53.5 grams of silver per tonne over 4.6 metres. A map and cross section published by the operators suggest the possibility of large size and a setting amenable to open-pit mining.

Other major companies who were active in the Sicker belt included KIDD CREEK MINES on properties optioned from Esso Minerals adjoining both the east and west sides of the Lara property, FALCONBRIDGE COPPER at MT. SICKER, and FALCONBRIDGE LTD. near Crofton, all in the CHEMAINUS RIVER area (166). A small but promising program was initiated by CANAMERA EXPLORATIONS around the old Copper Canyon workings located between the Lara and Mt. Sicker properties and on strike with both. A drill test of coincident soil and geophysical anomalies has revealed elevated base metal values associated with chert and coarse felsic pyroclastics. UTAH MINES carried out comprehensive mapping and surface geophysical surveys on a property just west of Chemainus and on a very large property called STRIKER (167) which extends along the north side of Cowichan Lake. IMPERIAL METALS at HASLAM CREEK (168) and WESTMIN RESOURCES at the THISTLE property (170) southeast of Port Alberni both plan to drill late in the year, following major delays due to forest closures and related problems.

Exploration in the Kennedy River gold belt was subdued in 1985. FALCONBRIDGE LTD. had a crew working on the large WICK (172) property of Victoria Resource Corporation north of Toquart Bay. They spent the season mapping and prospecting and drilled 7 holes in the vicinity of the former-producing Lucky vein. Several operators mounted small programs to re-examine old showings throughout the Kennedy River-Tofino area but there were no other large-budget programs.

FALCONBRIDGE LTD. examined and drilled a massive sulphide showing on JASPER CREEK (173) near Nitinat Lake. Although badly disrupted by faulting, the mineralization occurs in cherty dacitic tuffs of the Bonanza group and appears to have been originally stratabound. The Bonanza volcanics are mostly subaerial and have, consequently, been generally ignored as a potential host for stratabound massive sulphides.

At VALENTINE MOUNTAIN (174) north of Sooke, FALCONBRIDGE LTD. optioned the Au vein prospect of Beau Pre Explorations and carried out some late-season trenching and sampling. A very large number of Notices of Work were received from prospectors and small companies planning to explore claims in the Leech River Complex and other parts of Vancouver Island south of Cowichan Lake. Most were very low budget projects and many were delayed or postponed due to the forest closure. Aside from Valentine Mountain, no significant new developments are known in that area.

IRON RIVER RESOURCES prospected and mapped parts of their large JOE ANNE-RINA (179) property in the Piggott Creek valley west of Mount Washington. Their work has demonstrated that Tertiary volcanic diatreme breccias are more widespread than previously recognized in that area and that the potential for significant precious metal-copper vein-breccia systems of the Mt. Washington type is very high throughout the Wolf Lake-Mt. Washington-Forbidden Plateau region.

In the Zeballos camp, attempts are being made to explore and possibly reopen a few of the old gold mines, including the Privateer, but the only major exploration project in 1985 appears to have been the HILLER (182) project of FALCONBRIDGE LTD. This company is systematically exploring a series of gold bearing magnetite skarn deposits extending from Zeballos northwest to Artlish River. CAL-DENVER RESOURCES had a crew re-examining a group of old gold showings on AMAI INLET (181) east of Kyuquot. Plans for late-season drilling have been reported.

Exploration activity was quite limited at the north end of Vancouver Island. KERRISDALE RESOURCES drilled the NIMPKISH (183) skarn occurrence on Storey Creek in an unsuccessful attempt to extend the known reserves of Ag-Pb-Zn-Cu mineralization. UTAH MINES in their continuing search for Cu-Mo-Au reserves on the extensive EXPO (185) property east of Holberg drilled 6 holes in an attempt to locate epithermal gold mineralization beneath the siliceous cap on Macintosh Mountain.

On Texada Island, a small staking rush resulted from the news in January that prospector Ed Johanson and his partners had found spectacular native gold in quartz veins in a shear zone on the HOLLY (187) property near Vananda. NORTHAIR MINES optioned the property, and trenched and drilled it with disappointing results. The wave of activity inferred by the extensive property acquisitions did not materialize as expected. Nevertheless, the partnership of RHYOLITE RESOURCES and HERITAGE PETROLEUM did carry out considerable drilling and surface surveys on their various holdings in the Vananda-Blubber Bay area. Their various showings include both precious metal veins and precious metal-bearing skarns. Several other operators have explored or are exploring properties on Texada Island in 1985.

At Phillips Arm on the mainland coast, two large-budget projects were carried out in and around two former Au-Ag producers. FALCONBRIDGE LTD. explored the ALEXANDRIA (21) property of Charlemagne Resources with airborne geophysics, geochemistry, mapping and sampling, and a large underground drill program. SIGNET RESOURCES explored the DORATHA MORTON (186) mine and environs with trenching and underground drilling.

The search for polymetallic massive sulphides in the roof pendants of the Coast Range Plutonic Complex appears to have tapered off to the point where only two drilling projects were undertaken in 1985. After extensive geological surveys on the INDIAN RIVER-FURRY CREEK (190) property optioned from Anaconda, CORPORATION FALCONBRIDGE COPPER are carrying out an aggressive late-season drilling program. Earlier in the year NEWMONT drilled 12 holes totalling about 632 metres on the RED TUSK (189) property west of Squamish where the target is polymetallic mineralization in siliceous dacitic volcanics close to an intrusive contact.

In the Chehalis River area north of Harrison Mills, INTERNATIONAL CURATOR RESOURCES are closing off their 1985 program with some drilling on the AGASSIZ-WEAVER (SENECA) (191) polymetallic massive sulphide prospect. Nearer the north end of Harrison Lake, RHYOLITE RESOURCES and HERITAGE PETROLEUM did some drilling on the DOCTORS POINT (195) Au-Ag prospect and Diamond Resources drilled 21 percussion holes and 4 diamond drill holes on the nearby TOIL claim where the target is precious metals in massive pyrite bodies.

Last, but definitely not least, one of the more promising mineral prospects in the Southwest District is the RN-HOT (192) property northeast of Harrison Hot Springs which is being explored by KERR ADDISON under option from Abo Oil. Drilling is underway late in the year and a 10 ton bulk sample has been sent out for metallurgical testing. Mineralization consists of native gold in quartz veins cutting Tertiary diorite bodies. Visible gold is reported in core from current drilling and in outcrops exposed while preparing a drill access road.

Coal

Three exploration drilling programs have been reported on Vancouver Island coal properties in 1985. TWINFORKS MINING LTD. drilled 28 shallow rotary holes on the SOUTHFORKS (176) property southwest of Nanaimo. They are investigating the extent of unworked coal reserves above the workings of "Old No. 1" mine. CANADIAN OCCIDENTAL PETROLEUM drilled a total of 10 holes to test the thickness and continuity of coal seams at the LANTERMAN CREEK (177) property northwest of Port Alberni. WELDWOOD continued systematic exploration of the HAMILTON LAKE (178) coal licences southwest of Cumberland.

Two other coal projects, Quinsam and Chute Creek, are referred to later under the heading of Development.

Placer

A moderate amount of placer mining took place in the Southwest District in 1985, divided more or less evenly between the LEECH RIVER (175) area of southern Vancouver Island and the FRASER RIVER (194) area between Hope and Yale.

Notices of Work

The numbers of Notices of Work filed to date in 1985 are:

Mineral	-	132	(111)
Coal	-	6	(0)
Placer	-	15	(12)

The numbers in brackets are the corresponding totals for 1984. The increase in Mineral notices is real but the comparisons for Placer and Coal are not significant because Coal notices from Vancouver Island and Placer notices from the mainland were not being forwarded in 1984.

DEVELOPMENTS

The H-W mine and expanded mill complex of WESTMIN RESOURCES at MYRA FALLS (171) near Buttle Lake began operating during 1985 and were officially opened in September. No other metal mines are presently under development in the Southwest District.

However, two potential coal mines on Vancouver Island are in the development stage. QUINSAM COAL LTD.'s proposed 1 million tonne per year open pit development southwest of Campbell River has received all approvals to proceed but is presently on hold pending improved markets for thermal coal. In the meantime, Quinsam continued with more test drilling and recovery of small test bulk samples in 1985.

TABLE 15
ACTIVE METAL MINES IN SOUTHWEST DISTRICT, 1985

MAP NUMBER	MINE	COMPANY	COMMODITIES	REMARKS
184	Island Copper	Utah Mines Ltd.	Cu/Mo/Au	Continued in full production, milling approx. 40,000 tonnes per day; on-property exploration included approx. 5300m of diamond drilling, both within and outside of the pit.
171	Myra Falls Operations (Lynx/Myra/H-W mines)	Westmin Resources Ltd.	Cu/Zn/Pb/Au/Ag	H-W mine and new 2700 tonne/day mill were officially opened in September, underground exploration drilling continues at H-W and Lynx mines.

At the adjacent CHUTE CREEK-IRON RIVER (180) coal licences, NUSPAR RESOURCES have received approval to extract a 25,000 tonne test bulk sample to ship to Japan. If tests are favourable, they have a tentative agreement to sell the Japanese 100,000 tonnes/year of thermal coal for 3 years. Planning and clearing operations are underway in anticipation of that development. Exploration mapping, trenching and drilling are also continuing.

PRODUCERS

Table 15 summarizes some of the details of the only two producing mines in 1985. The ISLAND COPPER Cu-Mo-Au mine (184) of UTAH MINES at Rupert Inlet continued normal operations through 1985. Exploration continued systematically with drill testing of coincident geophysical-geochemical anomalies on the property but outside of the pit area. In addition, a program of 9 diamond drill holes in the southeast part of the pit located new mineralization in a down-dip and down-plunge direction from present reserves in that part of the orebody.

At the MYRA FALLS (171) operations of WESTMIN RESOURCES near Buttle Lake, the H-W mine (polymetallic massive sulphides) with published reserves of 13.8 million tonnes and the new mill with a daily capacity of 2700 tonnes were officially opened in September of 1985. Exploration was somewhat scaled back from its 1984 level but is continuing with underground exploration drilling of the H-W deposit, which is still open in 3 directions, and of the original Lynx and Myra deposits.

INDUSTRIAL MINERALS

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Most of British Columbia's industrial minerals operations enjoyed a successful year in 1985.

Asbestos

A major underground exploration program was initiated this year to study in more detail the McDame orebody. This orebody is expected to extend the life of the CASSIAR (1) (Figure 4) mine well beyond the year 1990 when the present mine will be depleted. Also, a small exploration program was carried out on a group of claims north of the present mine.

Barite

The FIRESIDE (2) deposit of Magcobar Division of Dresser Industries and the PARSON MINE (3) of Mountain Minerals Ltd. operated at slightly higher production levels than during 1984. The SILVER GIANT (4) mine of Baroid was reactivated in 1985 to mine remaining pockets of barite from the open pit.

Building Stone

Production of flagstone by both REVELSTOKE (5) producers and from the quarries in SALMO (6) area continued at levels similar to 1984. Canroc International Corporation in Delta was processing mostly old stockpile blocks of "coastal granite" from Nelson Island.

Carbonatites

A systematic government study of carbonatites by Jennifer Pell continued in 1985 with mapping the nepheline syenite complex at TRIDENT MTN. (7) with a reconnaissance visit of the ALEY (8) property.

New Developments

Cominco had a major exploration program to study the ALEY (8) carbonatite which has reported niobium and rare earth elements values. Reserves and grades for this significant deposit have not yet been released.

Diamonds

No field work was reported by the industry in 1985.

New Developments

A systematic study of kimberlite related diatremes in British Columbia was initiated this year by the Geological Branch of the Ministry. Jennifer Pell has mapped several reported sites and collected samples for laboratory studies.

Diatomite

The MICROSIL INDUSTRIAL MINERALS (9) operation in Quesnel was inactive, but some sales continued in 1985 from the old stockpile.

The 1985 production from the RED LAKE (10) deposit near Kamloops has more than doubled the 1984 output. D.E.M. Resource Processors of Calgary is marketing its product as 'fuller's earth" for both industrial and domestic uses.

Gypsum

Both WESTROCK INDUSTRIES (11) and DOMTAR INC. (12) were producing gypsum from their properties near Windermere and Canal Flats. The Falklands quarry of LaFarge Canada was inactive.

New Developments

RAINES GYPSUM INC. (13) built an access road to the O'Connor gypsum deposit in the northwestern part of the province and shipped a bulk sample to test the feasibility of developing this deposit for the Vancouver market.

Gemstones

Jade

Only limited work has been reported from two producing areas in northern British Columbia - KUTCHO CREEK (14) and OGDEN MOUNTAIN (15).

Limestone

Production by four major companies from TEXADA ISLAND (16) continued during 1985 without significant changes. One of the producers - Oregon Portland Cement - changed its name to Ash Grove Cement West Inc. in the interior. International Marble and Stone Co. Ltd. continued production of white limestone from the LOST CREEK (17) quarry and of white dolomite from CRAWFORD BAY (18). Also, Mighty White Dolomite Ltd. of ROCK CREEK (19) continued its production of agricultural lime and landscaping chips. The VTS Quarry Ltd. in Grand Forks was inactive during 1985.

In Prince George area, the DAHL LAKE (20) quarry saw limited production in the later part of the year. Prime Lime and Marble Ltd. quarry on BAKER CREEK (21) south of Chetwynd was in full production during 1985 and shipped a variety of crushed products and agricultural lime.

New Developments

On Vancouver Island, International Marble and Stone Company developed a deposit of white limestone for filler grade products in the BENSON LAKE (22) area. Because of contamination by aplite and amphibolite dykes, the Bonanza Lake quarry was abandoned.

On ARISTAZABAL ISLAND (23), Peter Kiewit Sons Co. Ltd. did a limited amount of work at the site of an old quarry.

Magnesite

The EON MOUNTAIN (24) quarry of Baymag Mines Co. produced approximately 130,000 tonnes of magnesite in 1985. The mineral is hauled to Exshaw, Alberta, where it is processed into refractory and chemical grade magnesia.

Mica

New Developments

The RAFFERTY CLAIMS (25) of Pacific Mica Ltd. were studied for a second consecutive year as a possible source of muscovite mica from a high grade mica schist. Work included trenching and laboratory studies to test the recovery and quality of the mica product from this property.

Perlite

Processing of perlite from the FRENIER (26) deposit of AURUN MINES south of Gang Ranch continued successfully during 1985. At present the company is building a new processing plant to replace its pilot plant in Aldergrove.

New Developments

In FRANCOIS LAKE (27) area, Aurun Mines carried out limited exploration work in the proximity of an old perlite showing.

Silica

Mountain Minerals in GOLDEN (28) continue to produce glass grade sand with the plant operating at full capacity. Also, Bert Miller Trucking and Contracting were shipping lump silica from the NICHOLSON (29) quarry to Hanna Mining Co. plant in Wanatchee, Washington. The PACIFIC SILICA (30) quarry in Oliver changed the ownership in 1985, but the production of small tonnage of landscaping chips and similar products proceeded as in previous years.

GOVERNMENT FIELD ACTIVITIES

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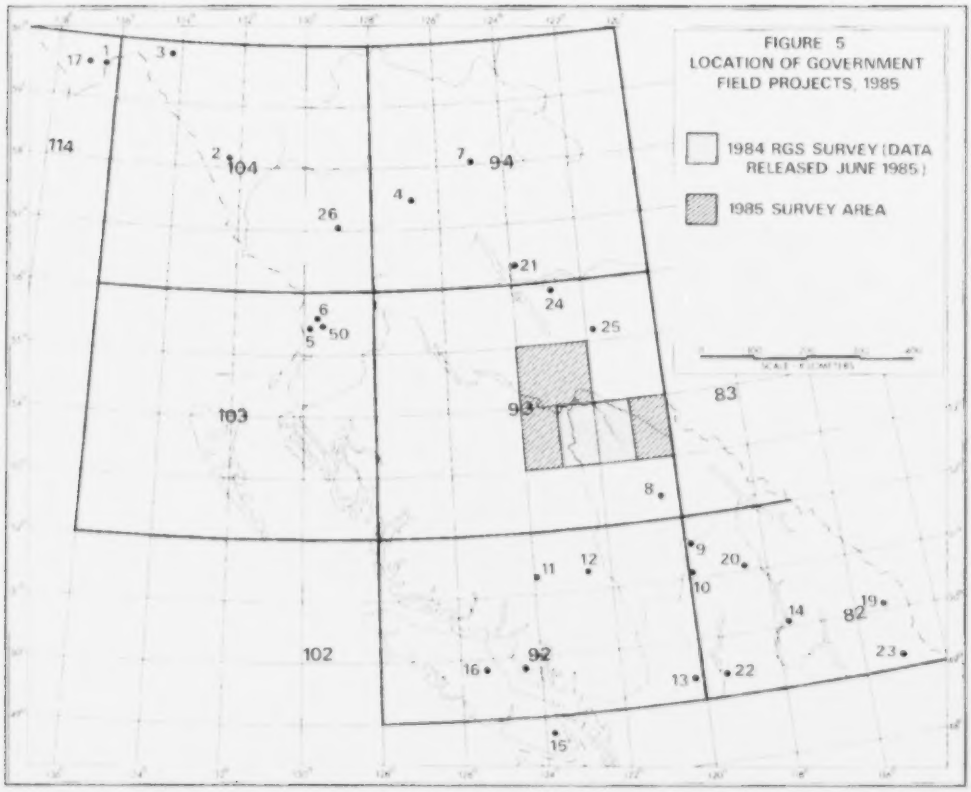
The pace of field activities by Branch geologists began to pick up in 1985 in response to the summer signing of the joint B.C./Canada Mineral Development Agreement. The signing was too late in the season to mount a full program but the funding enabled accelerated efforts in metallogenic mapping, resource evaluation, property mapping, and the regional geochemical stream silt and water sampling program. Initial results of the programs carried out are presented in Fieldwork and Current Research, 1985, B.C. MEMPR Paper 1986-1.

Several studies continued the evaluation of the regional metallogeny of late Triassic rocks in the Cordillera. In the northwest tip of the Province TOM SCHROETER and DON MACINTYRE visited prospects in the MOUNT HENRY CLAY area (1) (Figure 5). The age of the host rocks is late Triassic like at Windy Craggy but felsic volcanic rocks occur along with pillow basalts at Mount Henry Clay and the mineralization is stratabound and polymetallic. Like that at Windy Craggy, mineralization occurs at the end of a volcanic cycle.

TOM SCHROETER spent two weeks in the MUDDY LAKE-TATSAMENIE LAKE area (2) mapping and visiting properties. Precious metal mineralization in the area is structurally localized in silicified, dolomitized limestone breccias and listwanitized tuffs. He also examined properties in the BENNETT (3) and ATLIN areas as part of a continuing project to evaluate the potential for Skukum epithermal and Venus polymetallic vein-type deposits in contiguous rocks in British Columbia. The precious metal veins are generally associated with Cretaceous to Tertiary intrusions. Potential for similar mineralization in British Columbia exists for several hundred kilometres southward along the east side of the Coast Plutonic Complex.

TOM SCHROETER also monitored activity in the Toodoggone (4) epithermal precious metal camp. With the initiation of surveys for access and awaited production decision at the Lawyers deposit in the near future, interest in the area has been high. The Ministry released Preliminary Map 61 on the geology of the area in August; the two map sheets are at scale 1:50,000.

Mineralization associated with Triassic and Jurassic volcanic rocks is under study in the ANYOX (5) and ALICE ARM (6) areas by DANI ALLDRICK and MDA contractor GARNET DAWSON. Work at Anyox consisted of reconnaissance mapping in the hanging wall sediments; samples were collected for chemical and microfossil analysis. This reconnaissance is a precursor to future work. In Alice Arm, mapping of Kitsault Valley has improved understanding of the stratigraphy, structure and age relationships. Fossil and isotopic age dating will follow.



In the GATAGA (7) area of northeastern B.C. work by KEN McCLAY and other researchers of University of London this year focussed on the regional structural and stratigraphic setting of the Paleozoic Driftpile Creek Pb-Zn-Ag-Barium deposit. Mineralization is rhythmically layered, as has been predicted for mineralization deposited from a brine pool.

Mineral deposits with copper and gold values in Mesozoic volcanic rocks in the Quesnel Trough near HORSEFLY (8) in the Cariboo area are the centre of interest of a project begun this season by ANDRE PANTELEYEV. The purpose of the study is to decipher the volcanic stratigraphy, and to examine the distribution, characteristics and controls of related alkalic intrusions that host or are associated with the mineralization. A deposit of interest in the area is the QR deposit where potentially open pittable gold mineralization occurs in a zone of propylitic alteration in Nicola Group volcanic and sedimentary rocks adjacent to a syenitic stock.

In the CLEARWATER-VAVENBY (9) area, MDA contractor PAUL SCHIARIZZA extended mapping in the Paleozoic Eagle Bay Formation northward from the area covered by Ministry Preliminary Map 56. The area covered encompasses the Harper Creek copper and Rexspar uranium-fluorine deposits; potential for Hilton (Rea) type volcanogenic massive sulphide deposits exists. Revision of earlier interpretations of the regional stratigraphy were prompted by the discovery of Lower Cambrian Archaeocyatids in limestone that correlates with the Tshinakin limestone of the Adams Lake area.

To the south at ADAMS LAKE (10), TRYGVE HOY and FRANCOISE GOUTIER studied the volcanogenic precious and base metal Hilton (Rea) and Homestake deposits. Both occur in the same basic to felsic metavolcanic unit of the Eagle Bay Formation, but at different stratigraphic levels.

Geological mapping, stream and rock geochemistry were conducted by GRAEME McLAREN in the CHILKO LAKE (11) area. The project was MDA funded and intended to evaluate the resource potential of the area. The stratigraphy was re-evaluated and several previously unrecognized stocks with potential for mineralization of economic interest were identified.

TED FAULKNER worked in the area of the BLACKDOME (12) epithermal gold,silver deposit northwest of Clinton. Mineralization there forms ore shoots in quartz veins in Tertiary volcanic rocks. Plant construction is well advanced and production at 180 tonnes per day is expected to begin early in 1986.

Reconnaissance mapping, geochemical and microfossil sampling in the HEDLEY area (13) by GERRY RAY will lead into an MDA supported detailed geological mapping program in the 1986 field season. Work this season south of Similkameen River defined a sequence of distal turbidites that are overlain by slump breccia, volcanic wacke, siltstone, tuff, coarse volcanic breccia, and flows of the Nicola Group. The slump breccia may correlate with the Copperfield breccia on Lookout Mountain near the old Nickel Plate mine.

In the southcentral part of the Province, NEIL CHURCH has completed a report on mineralization on Triassic Brooklyn rocks in the Mt. Attwood- Phoenix area.

In the Nakusp area, GEORGE ADDIE examined the geology and carried out test self-potential surveys on the HAILSTORM (14) gold property near Tillicum Mountain and at the old Referendum mine near Nelson. Mineralization at both properties occurs in quartz veins and faults in metamorphosed Jurassic Rossland Group volcanic rocks and older (?) sedimentary rocks, which are roof pendants in the Nelson batholith.

PAUL WILTON studied surface exposures and drill core at the LARA (15) property on Mt. Sicker and at several showings on MOUNT WASHINGTON (16) on Vancouver Island. The Lara property contains stratabound massive Cu-Au-Ag-Pb-Zn mineralization in felsic metavolcanic rocks of the Paleozoic Sicker Group. Mineralization on Mount Washington is related to Tertiary intrusive

rocks that cut Triassic Karmutsen volcanics and Cretaceous Nanaimo Group sediments; copper-molybdenum mineralization occurs in stockworks associated with intrusive breccias; coppr-gold or lead-zinc-silver deposits are associated with zones of intense alteration and low angle fractures.

Activity in industrial minerals was expanded by MDA funding. GARY WHITE carried out geological mapping at the O'CONNOR (17) gypsum property near Haines, Alaska, and studied the distribution of germanium in coal-bearing sediments in the LANG BAY (18) area near Powell River. DAN HORA examined the DEEP PURPLE and ROCK CANDY (19) fluorite occurrences in the southeast. This property will be studied further to determine whether the host rocks are carbonatites. JENNIFER PELL, under an MDA contract, visited and mapped diatremes and suspected kimberlitic pipes in the southern Rocky Mountains, joined forces with TRYGVE HOY to study the distribution and measure sections through the MOUNT GRACE (20) carbonatite bodies northwest of Revelstoke and examined the ALEY (21) carbonatite body near Williston Lake. ANDREW LEGUN carried out a reconnaissance survey of phosphate potential in the Wapiti area in the northeast. DAN HORA and NEIL CHURCH completed a laboratory study on zeolotized Tertiary rocks from the OKANAGAN area (22) which revealed significant new localities for clinoptilolite.

Field studies of the province's coal resources were at about the same level as in 1984. In the southeast, DAVE GRIEVE and WARD KILBY carried out an analysis of the resource potential of the Flathead Ridge area in the SOUTHERN DOMINION COAL BLOCK (23). Dave also continued studies between Ewin Pass and Bare Mountain that will improve coal seam correlation on the Coalfield.

In the Northeast Coalfield, ANDREW LEGUN expanded compilation, stratigraphic, structural, and correlation studies in the CARBON CREEK (24) area; interleaving of some units complicated the analysis. WARD KILBY and HAROLD OPPELT continued tracing tonstein and bentonite (volcanic ash) layers and studying their chemical characteristics as a tool for correlating rock units in the NORTHEAST COALFIELD (25). They also examined the distribution of the Bluesky Formation; this will form the basis of a thesis for Oppelt.

Geological mapping of anthracite-bearing coal measures in the MOUNT KLAPPAN (26) area by JAHAK KOO has led to documentation of structural details, stratigraphic subdivisions, regional correlations, and coal potential. The coal measures are developed in rocks that mark a transition from marine to continental conditions of sedimentation in the Bowser Basin at the end of the Jurassic period. Formation of anthracite indicates conditions of high heat flow but intrusive rocks in the area are few; high geothermal gradients may be responsible.

Two map-areas in the Cariboo area near Prince George were sampled in the 1985 Regional Geochemical Survey. These were selected to cover areas underlain by rocks with potential for copper-gold, precious metal, and other deposit types. The program was managed by WES ROBSON with field supervision by contractor ALEX HORONOWSKI. Sampling was carried out by NITEC RESOURCES MANAGEMENT LTD. and McELHANNAY ENGINEERING SERVICES LTD. in NTS area 93G/W (Prince George) and 93H/E (McBride) to complete map-sheets begun in 1984, and also in area 93J (McLeod Lake). Results of the sample analyses, including the pathfinder elements arsenic, antimony, silver, and mercury, will be released in June 1986.

MAJOR EXPLORATION
PROPERTIES

Printed in Canada
Queen's Printer for British Columbia
Victoria, 1985 ©